

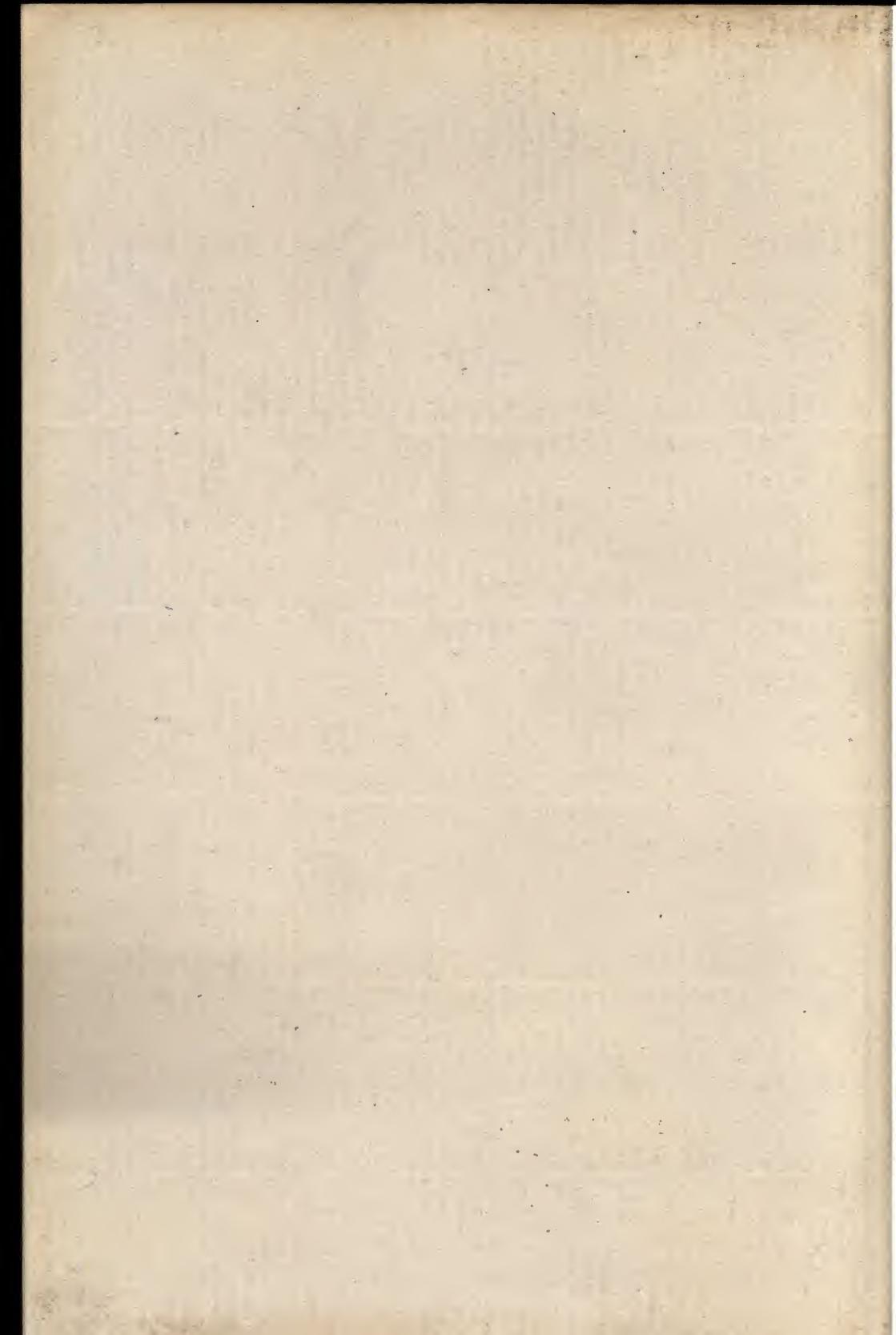
# BURT





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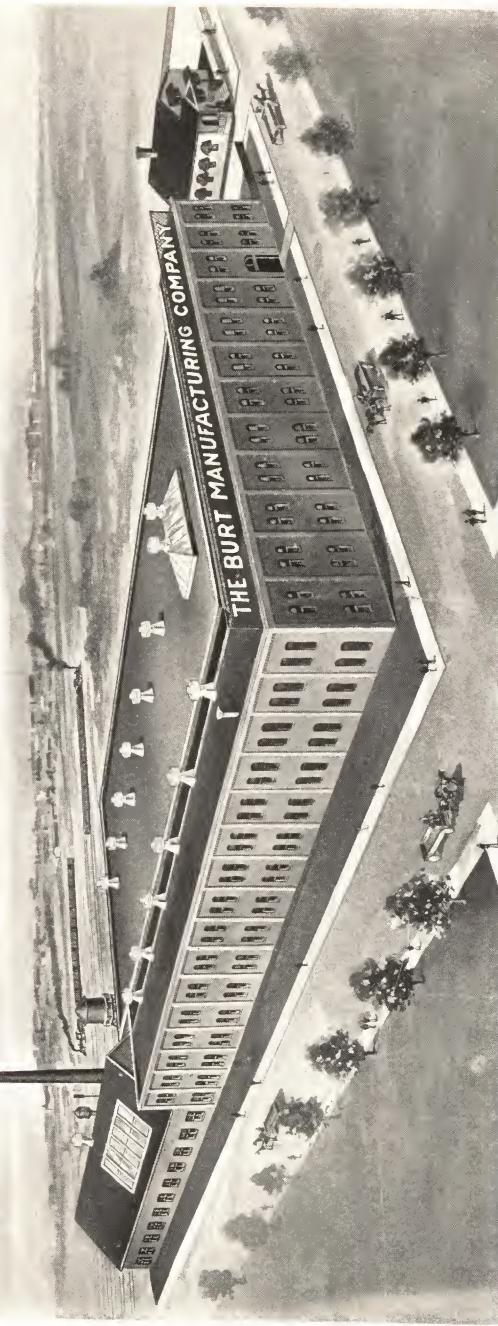
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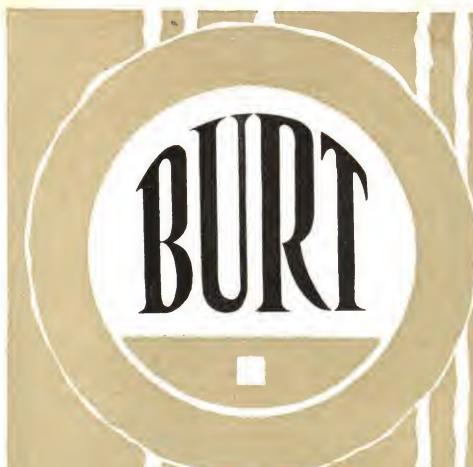
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Mike Jackson, FAIA



The Burt Manufacturing Company, Akron, Ohio, U. S. A.



**BURT**

# OIL-FILTERS EXHAUST-HEADS & VENTILATORS

*The CROSS AMERICAN and  
WARDEN Oil Filters — The  
BURT Oil Filtering System  
The BURT Exhaust Head  
The STANDARD Exhaust Head  
The BURT Combination  
Sky-Light and Ventilator  
The BURT Rotary Ventilator*



**BURT MANUFACTURING  
COMPANY**

Largest Manufacturers  
of Oil Filters in the World.

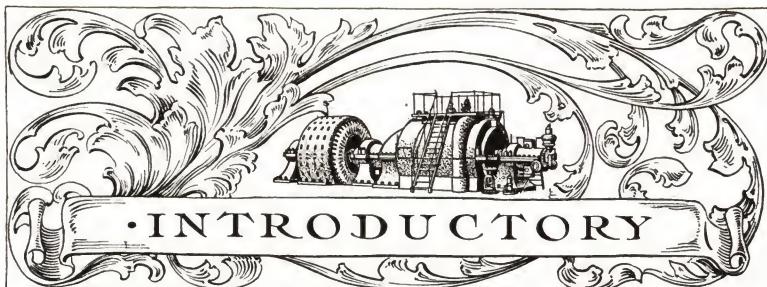
AKRON, OHIO, U.S.A.

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OIL FILTER MAKERS TO

United States Government  
English Government  
Russian Government  
Spanish Government  
Hawaiian Government  
Japanese Government  
Swedish Government  
Mexican Government  
Argentine Government  
Cuban Government  
Australian Government  
Canadian Goverment  
Chinese Government

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The Burt Manufacturing Company  
Akron, Ohio



**H**IS Company began business at Akron in the year eighteen hundred and ninety-one, in a small way, as makers of oil filters. Previous to that date, the filtering of lubricating oil with a view of using it over again, was an almost unknown practice. The Oil Filters made by us, however, soon attracted attention, and the great saving effected by their use was so apparent that before long well-informed engineers came to regard them as an essential feature of every well-ordered engine-room and machine shop. As a consequence, our output increased with great rapidity, and frequent additions to our plant were required from time to time. Today, we are the largest manufacturers of oil filters in the world, and have customers in all parts of the United States and in twenty-nine foreign countries. Our goods have been adopted by thirteen governments, and we have selling agencies in all the principal cities of the world.

In addition to our various types of Oil Filters, we manufacture the Burt Ventilator and the Burt and Standard Exhaust Heads, with which we have equipped a great number of manufacturing plants and public buildings.

Our business has been under the same management from the beginning. Our endeavor has always been to put the best materials procurable into our goods, to employ the most experienced workmen, and to utilize the most modern machinery. To this policy we attribute our success in establishing a trade of such world-wide magnitude. Our facilities enable us to promptly execute contracts for supplying Oil Filters, Exhaust Heads, and Ventilators, of any size or number, and our works contain the most up-to-date machines for the making of sheet-metal goods of every description.

The foregoing brief statement of the marvelous growth of our Company is, we believe, the best testimonial we can offer as to the practical merits of the goods described in the following pages.

THE BURT MANUFACTURING CO.

## *Saving Waste Lubricating Oil*

EVERY user of lubricating oil knows that the larger portion of the oil he buys is not consumed by the machinery on which it is employed, but passes through the bearings, drips away and is lost, except in cases where special provision has been made for gathering the waste oil by means of drip pans or buckets placed under the bearings. This waste oil frequently amounts to from 50 to 90 per cent. of the whole quantity used, but if gathered and caused to pass through one of our filters, all dirt, grit and other impurities will be eliminated, and the waste oil can then be used over again on the finest machinery with perfect safety. By this means it becomes possible to save at least 50 per cent. of the oil bills, and in some cases even more; and as the lubricating properties of oils are not affected in the least by use on bearings and subsequent filtering, the cost of an oil filter is an investment that pays very large dividends.

In many engine rooms the oil is not only wasted, but is allowed to saturate the floor and accumulate under it and about the engine foundations—a condition of things which is extremely wasteful and unsightly, and which necessitates the cleaning out of this mass of oil and filth whenever it is desired to reach the foundation bolts or to make even the slightest repairs around the engine bed. Some engineers, in order to avoid such an accumulation, place a large quantity of good cotton-waste around the engine bed to absorb the drip, and as soon as the waste is saturated with oil they throw it into the furnace. This practice is extravagantly wasteful. It can be avoided by arranging pans or buckets to catch the drippings and then filtering the oil thus gathered, which can be done with almost no loss of time, while the operation of the filter costs practically nothing.

## ***Free Lubrication Necessary***

There is another important detail in the interest of economy made possible by the filtering of waste oil which is perhaps of even greater importance than the direct saving of oil effected. Where no filter is employed it is usual to require that the oil passages on engines and machinery shall be made of the smallest practicable size, so as to minimize the flow of oil and reduce the quantity consumed. This creates a constant liability that a small particle of solid matter may choke up an oil passage and stop the flow of lubricant, causing increased and dangerous friction, or possibly a "hot box," and sometimes even necessitating a "shut-down" of the plant. Where a filter is employed, on the contrary, it is true economy to have all the oil passages of liberal size, so as to provide free and copious lubrication, and the life of machinery will thereby be considerably extended.

It is well known that a flowing oil, fed freely, will reduce friction to a lower point than a heavier oil fed slowly. But as free-flowing oil runs to waste very rapidly, the disposition of engineers, where no filter is employed, is to use the heavier oils so as to minimize waste. By the use of a filter the waste can be reduced to practically nothing, and free-flowing lubricants can therefore be profitably employed. As the more fluid oils usually cost less than the heavier grades, besides being better lubricants, a double saving is thus effected.

Practically the only expense in connection with an oil filter is its first cost, which will be saved to the user in a few months. The filters described in the following pages are guaranteed to last for a great many years, requiring only the expenditure of a few cents at long intervals for the renewal of the filtering material.

## ***The Cost of Lubrication***

It is generally conceded that the best lubricating oils are theoretically the cheapest, almost irrespective of price; that is to say, they are the cheapest to use, although they

may not be the cheapest to waste. The cost of oil, properly regarded, is not the cost per gallon, but rather the cost per annum; and any expense occasioned by the use of inferior oils, which the use of the better grades of oil would obviate, is properly chargeable to lubrication account.

Moreover, an engine on which poor oil is used will not develop full power. Neither will it run long without repairs becoming necessary. Ultimate economy, therefore, demands that the quality of the lubricant employed should be given first consideration, rather than its cost per gallon.

With these facts in view, many who adopt our filters, after finding how great a saving they effect, at once begin to use better oil than before, feeling that they can well afford to pay for the finest lubricant procurable, seeing that none of it goes to waste.

### ***Reduced Coal and Repair Bills***

This improved lubrication materially reduces the power required, and there is a corresponding reduction in coal bills which in some cases amounts to more than the value of the waste oil saved. It is clearly apparent, therefore, that the cost per gallon and the quantity of oil purchased constitute but one factor in the cost of lubrication, and that it is not the most important factor, properly considered. Of much greater consequence is the question as to how much the bills for coal and for repairs might be reduced if a *better quality of oil* were adopted and the waste oil saved and filtered over and over again until wholly consumed.

### ***Where Free-Flowing Oils are Essential***

On rapid-running machinery it is especially important that none but free-flowing lubricants of the best quality should be used, because the bearings on such machines are very liable to be cut into and to become overheated if cheap, low-grade oils are used. The truest economy is to supply the bearings with a liberal quantity

of a high-grade oil, of a sufficiently fluid character to pass through freely, and then to filter the waste oil, rather than to use a cheap oil and throw away the waste. That our filters are now recognized as a necessary adjunct of every well-organized power plant, is the verdict of our numerous customers throughout the entire world, as shown by hundreds of letters we have received, a few of which will be found in other pages of this catalogue.

### ***To the Unconvinced***

We suggest to those who are not convinced of the advantage of using an oil filter, or who think their consumption of oil is too small to warrant using one, that they instruct their engineer to collect the waste for a month or two and store it in a barrel. We are confident they will be surprised at the quantity of oil which can thus be accumulated. If they will then consider that a suitable oil filter will reclaim the whole of this dirty waste oil and make it as good as before it was put on the bearings, and that it will do this over and over again until the oil is absolutely consumed in the process of lubrication, making a saving of at least 50 per cent. and in some cases as high as 90 per cent., they must perceive that the small investment required to install a filter of a size adapted to their requirements would be money well expended.

It is the little leaks that swallow up the profits, and there is no source of loss so continuous and so frequently overlooked by manufacturers as the waste of lubricating oil—an inseparable feature of the operation of all machinery. The remedy, however, is simple and within the reach of all. The largest concerns have pretty generally recognized this fact, and have equipped their plants accordingly. But many of the smaller concerns have not as yet given this subject full consideration, and are therefore continuing in the old and extravagantly wasteful way, and consequently losing more money every year in the form of waste oil than would provide them with all the advantages mentioned in the foregoing paragraphs. We

trust that all such into whose hands this book may fall will be induced to investigate the matter and inform themselves thoroughly. We confidently refer them to any of the numerous users of our filters whose names are scattered through these pages. We shall be glad to furnish on request any additional information desired.

### *Our Experience*

We have been making oil filters for over twenty-five years, and today our filters embody all the improvements suggested by years of actual use under every imaginable condition. We make a specialty of filters and are the only concern doing so. Our works are the largest and most complete in this line in the world. Over 70,000 of our filters (more than any other make) are in use in the United States and twenty-nine foreign countries, and they have been officially adopted by thirteen governments. They can be found in constant operation in a large proportion of the leading industrial plants of the world. This of itself constitutes the best sort of a guaranty that our filters are all that we claim for them.

### *Material and Workmanship*

The illustrations in this catalogue show the construction of our different filters, which are made of galvanized iron, all joints soldered, lapped and riveted. All inside work is rigidly braced and reinforced. They are neatly painted and hand-decorated in gold, with polished brass fittings and bosses, making them an ornament to any engine room. In the case of the larger sizes, heavy iron bands are placed around the filters, making them very rigid and durable. Nothing is spared in their construction to make them strong and lasting.

### *As to Price*

Our Filters are offered as the cheapest in the market, efficiency and durability considered, though not necessarily the lowest in price. It is not to be expected that we can afford to sell such substantial and perfectly con-

structed goods as we produce at the same price as is asked for poorly constructed and flimsy imitations made by persons who are attempting to trade on our reputation. Prudent buyers, however, are hardly likely to consider a difference in price of \$5, \$10, or even \$25, a bar to the purchase of an expense-reducer that will last for from fifteen to twenty years or longer, backed up by our established reputation and the guaranty which we furnish. In comparing our prices with those of other makers, careful note should be made of the diameter of the filter; its height, not including the legs or stand; and its net weight. Our filters are relatively heavier and larger than competing makes. That we have been able to establish a trade that is world-wide, and to constantly increase our sales and our repeat orders year by year, proves that our prices are reasonable.

### ***Filters for All Kinds of Oil***

Most oil filters on the market today will filter only oil of light gravity, and will invariably fail to give good results in the case of heavy-bodied oil. Our long experience in filter-making has enabled us to meet this difficulty perfectly, and we are now manufacturing four distinct types of filters, each of which is especially designed to meet certain conditions. These four types are entitled: the Cross Oil Filter, which was our original pattern; the Burt "Unit Type" Oil Filter, the American Oil Filter, and the Warden Oil Filter. The specific purpose for which each is best adapted is fully detailed at the proper place in this book.

### ***Capacity***

We guarantee the actual working capacity of every filter we make to be equal to the rated capacity. Our quoted ratings are the result of numerous practical tests with all grades of oil, and may be depended on to be under rather than over the mark. We do not claim, for example, that a fifteen-gallon filter will pass twenty-five gallons of oil per day—a form of misrepresentation that

is not unknown in the filter trade, which fact should be kept in view when comparing prices. We have numberless letters from customers touching the question of capacity. The following extract from a letter by the Superintendent of the Water Works and Electric Light plant of Jacksonville, Fla., is typical. Under date of February 13th, 1905, he says: "The No. 3 American Oil Filter, furnished us over a year ago, is giving entire satisfaction. It does all that you claim for it, and its capacity is greater than you rate it."

### *Oiling Heavy Machinery*

In plants such as Brick Yards, Sewer-pipe Works, Saw Mills, Iron Mills and the like, a cheap grade of oil may be used to advantage on the heavy machinery employed, and will answer every purpose satisfactorily. It is the practice in some plants such as these to save the dirty waste oil from the engines and use it to lubricate the heavy machinery. This is not true economy. The better plan is to filter all the waste of the expensive engine oil and use it over again on the engine only, and to use a cheaper grade of oil on the heavy machinery. In this connection, the following extract from a letter of the American Wringer Co., of Woonsocket, R. I., is of interest. They say: "We put this filter (the Cross Oil Filter) in use as soon as it was received, and now find that we would not be without it. We have had one or two filters before of different makes, but must say this is the best we ever had.

"We use our oils in so many different places after they come from the engine and other machinery that we did not think it worth while to filter them, and from what experience we had with other filters we could see no advantage in filtering our oils, but after receiving your filter and putting it in use, we do see there is an advantage in it after all and have filtered all our lubricating oils since."

### *Filters for Small Plants*

In plants of small or medium size the use of an oil filter is relatively as important as in the larger establish-

ments. A No. 2 size filter, for example, costing only \$20.00, can be used with economy in connection with steam engines as small as 30 H. P., or with gas or gasoline engines as small as 20 H. P. The cost of operating the filter will not exceed 50 cents per year, while by its use all the waste oil collected can be filtered and used over and over again, and under these circumstances the best grade of lubricant may be economically used. The Ridgway Dynamo & Engine Co., of Ridgway, Pa., writes as follows: "We use oil quite liberally in testing engines, and since we put in this filter (a Cross Oil Filter) we have not used a gallon of new oil on our testing block, and have effected a great saving. Where we have an opportunity, we recommend the use of a filter to any user of engines of 30 H. P. and upwards, and as far as our observation has gone, we have found nothing better than yours on the market."

### *About Filtering Material*

Opinions differ, and will probably continue to differ, as to the best material to use for the filtration of lubricating oil. Some engineers prefer common white waste, while others use animal bone-black, raw wool, excelsior, sponges, filtering cloths, etc. All of our filters are so constructed that any kind of filtering material may be used, which is a very important and distinctive feature.

### *Exhaust Heads*

We also manufacture two styles of exhaust heads, called, respectively, The Burt Exhaust Head and The Standard Exhaust Head, which are fully described and illustrated. If it is desired to recover the cylinder oil, we can furnish our Style B Filter, which will take the condensation from the drip pipe of the exhaust head or oil separator and automatically separate the cylinder oil from the water, and at the same time purify and clean the oil so that it will make a suitable lubricant for pumps or other machinery.

## *Thirty Days' Trial*

WE offer to send one or more of our Oil Filters or Exhaust Heads to any responsible house on 30 days' trial, subject to approval in every respect. If it is found upon trial that our oil filters do not reduce lubricating oil bills at least 50 per cent. or that our filters or exhaust heads fail to meet every claim which we make for them in this catalogue and guaranty, they may be returned, and we will pay freight charges both ways. This trial is free from expense in every way, so that any one who desires to test our goods will run no risk whatever in accepting this proposition. We are also willing to send our goods on trial in competition with any other make, the customer to be the judge as to which make will best suit his requirements.

## *Guaranty*

WE expressly agree to repair or replace, free of charge, any Oil Filter, Exhaust Head or Ventilator we sell which shall at any time be found to have been defective in workmanship or material. We are able to give this unqualified guaranty, and cheerfully do so, solely because we have perfected our product through many years' experience, because we put into them only the best materials to be had, and because our large force of employes have become experts in their line of work and are held to the strictest accountability for the proper execution of their individual share in the making of our goods.

## The Cross Oil Filter



HIS filter needs no introduction to the engineering profession, as we have been manufacturing it continuously for over twenty-five years. It is better known and more largely in use than any other make of filter on the market today.

We recommend the Cross for filtering engine and common machinery oils. For cleaning lard, cylinder, gas engine, and heavy oils we recommend our Burt "Unit" Oil Filter and the American Oil Filter.

Among the best known concerns who are using the Cross Oil Filter are the following:

The Standard Oil Co., who have 384 of these filters in their own pumping stations, which is the highest endorsement that could be given to any filter.

United States Steel Corporation, 406 Cross Filters in use.

New York City Public Schools, ninety-five Cross Oil Filters.

Panama Canal, Colon, Panama, five, No. 4.

Atlas Portland Cement Company, thirty-nine Cross Filters in use.

The Westinghouse Companies, eleven Cross Filters in use.

Delaware & Hudson Canal Co., ninety-five Cross Filters in use.

National Cash Register Co., ten Cross Filters in use.

Such concerns as these would not be found sending repeat orders year after year and constantly increasing the number of our filters in operation, unless they had proved satisfactory.

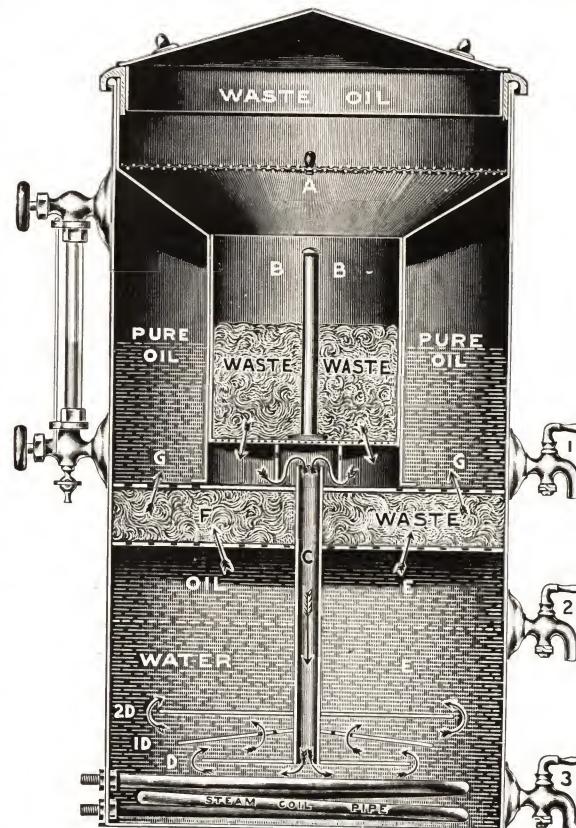


The Nos. 1, 2 and 3 sizes are made as shown in sectional view on this page; No. 4 and larger sizes as illustrated on page 20 (without connection for oiling system).

Very little steam (exhaust) is required, and if the filter is kept in a warm place it will not be necessary to make steam connections. The object of using heat is to increase the speed and capacity of the filter.

### Operation

The waste oil is poured into chamber A (see cut). It then passes into chamber B, through the layer of waste, which collects all the heavier impurities. From thence it passes through the perforated bottom of chamber B, downward in the direction shown by arrows into tube C, and from there to filter plate D, where the increased weight of the water has a tendency to keep the oil back in tube C. However, the pressure of oil in chamber B forces it down and it spreads out across the under side of plate D in a *very thin film* which constantly changes surface and grows thinner as it travels from the center to the outer edge of the plate, thus exposing every particle of



Sectional View

waste oil to the action of the water. The oil then flows over and under plates D' and D'', going through the same process in each case. When the oil leaves filter plate D'' it is in a finely divided state of separation and thoroughly mixed with water, which washes it out, and from which all the remaining impurities are separated by gravity and settle in chamber E, from whence they can be removed through cock No. 3. From plate D'' the oil again filters through the stratum of filtering material F, and from there it rises to chamber G, the reservoir containing the purified oil. It is then drawn off as required from cock No. 1.

The need of cleaning the Cross will recur at varying intervals, depending on the condition of the dirty oil that is being filtered. In some cases it will not become necessary to clean the filter oftener than once in three or four months, while in others it must be done about once a month. The filtering waste in chamber B can be instantly removed without interference with the pure oil supply.

Practically no attention is required after the filter is started, and the first cost is the only expense, excepting a few cents per year for waste.

The following two letters from the Eureka Fire Hose Co., of Jersey City, N. J., the first one having been written two years after installing a Cross Oil Filter, and the other nine years later, form the best kind of evidence both as to the satisfactory operation and the long life of our filters:

The Burt Mfg. Co., Akron, O.

Jersey City, N. J.

Gentlemen: We take pleasure in certifying that the oil filter purchased about two years ago has given good satisfaction.

Yours very truly,

EUREKA FIRE HOSE CO.

B. L. Stowe, Vice-Pres.

The Burt Mfg. Co., Akron, O.

Jersey City, N. J.

Gentlemen: We do not have much oil to filter, but the Cross filter that we purchased of you sixteen years ago filters satisfactorily all that we put into it. Yours truly,

EUREKA FIRE HOSE CO.

B. L. Stowe, Vice-Pres.

The testimony of a concern who are understood to be the largest cement manufacturers in the world, who have used our filters for over ten years, who had twenty-one of them in use a year ago and have recently installed eighteen more, making thirty-nine now in use in their works, forms an unanswerable argument in favor of our goods.

The Burt Mfg. Co., Akron, O.

Northampton, Pa.

Gentlemen: We have your favor of the 15th inst., and in reply would advise that we have twenty-six of your large Cross Oil Filters installed in our various plants, and they have given entire satisfaction. It was only quite recently that we sent you an order for additional filters, which we were influenced to do owing to the satisfaction which previous filters ordered from you have given us.

Yours truly,

ATLAS PORTLAND CEMENT CO.  
L. H. Repass, Purchasing Agent.

The following communication from one of the best-known manufacturing concerns in the United States, will be read with interest:

The Burt Mfg. Co., Akron, O.

Gentlemen: We are in receipt of your favor of the 22d inst., regarding the Cross Oil Filters that we have in our works, of your make, and in reply we beg to say that we have used one of these filters in our engine room for filtering our engine oil for the last five years, using it every day, and it has never given us any trouble, but does the work satisfactorily. With the hope that this word of recommendation will be of assistance to you, we beg to remain,

Yours truly,

THE BROWN & SHARPE MFG. CO.

Recently ordered four more.

Our oil filters are used by sixty-four of the largest and most prominent engine builders in this country and Europe. No higher endorsement of our filters could be mentioned than the patronage of these concerns, as they are necessarily in close touch with the most advanced engineering practice, and in many cases their officers are among the leading engineers of the country. Among the number are the following Engine Builders:

Allis-Chalmers Co., Milwaukee, Wis.  
 A. L. Ide & Sons, Springfield, Ill.  
 Buckeye Engine Co., Salem, O.  
 C. & G. Cooper Co., Mt. Vernon, O.  
 De La Vergne Refg. Machine Co., New York City.  
 Harrisburg Foundry & Machine Works, Harrisburg, Pa.  
 Hooven, Owens & Rentschler Co., Hamilton, O.  
 Mackintosh, Hemphill & Co., Pittsburgh, Pa.  
 McIntosh, Seymour & Co., Auburn, N. Y.  
 Mesta Machine Co., Pittsburgh, Pa.  
 Murray Iron Works Co., Burlington, Ia.  
 Otto Gas Engine Works, Philadelphia, Pa.  
 Power & Mining Machinery Co., Cudahy, Wis.  
 Providence Engineering Co., Providence, R. I.  
 Ridgway Dynamo & Engine Co., Ridgway, Pa.  
 The De Laval Steam Turbine Co., Trenton, N. J.  
 Vilter Mfg. Co., Milwaukee, Wis.  
 Westinghouse Machine Co., Pittsburgh, Pa.

### Price List the Cross Oil Filter

Strictly net, F. O. B. Akron, Ohio

SIZE	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Holding Capacity Dirty Oil (Gallons)	Diameter (Inches)	Height (Inches)	Capacity Pure Oil Chamber (Gallons)	Net Weight (Pounds)	Gross Weight (Pounds)	Diameter of Crate (Inches)	Height of Crate (Inches)
No. 1	20 to 30	\$ 0.00	7	18	30	11	36	100	24	32
No. 2	5 to 10	20.00	3	12	26	3	22	60	19	28
No. 3	40 to 50	60.00	17	24	36	20	72	170	33	40
No. 4	60 to 70	75.00	26	30	54	37	163	350	54	57
No. 5	70 to 90	90.00	32	33	56	49	196	409	54	59
No. 6	100 to 120	110.00	45	35	60	60	220	450	66	61
No. 7	120 to 150	130.00	52	35	74	75	250	500	66	76
No. 8	150 to 200	165.00	57	40	76	90	350	680	72	76

See trial offer and guaranty on page 14.

In comparing prices, note height and diameter of our filters, also that we absolutely guarantee capacity as above rated.

The capacity of a filter depends upon the heaviness of the oil to be filtered. The above figures are the minimum and maximum capacities for the heaviest and thinnest oils.

For filters of larger capacity see page 41.

Cross filters can be used for cleaning naphtha, gasoline, kerosene, etc.

Where ammonia oil is used, we furnish iron fittings instead of brass without extra charge.

# The Cross Oil Filter, "Style A"



HERE lubricating oil is used in very large quantities it is desirable, in the interest of economy, to make pipe connections by means of gate valves so that the filtered oil can be pumped to any part of the plant desired. For this purpose we recommend the "Style A."

Among the many prominent concerns using the "Style A" filter we refer to the following:

De Beers Diamond Mining Co., Kimberly, South Africa, one No. 5.

Anheuser-Busch Brewing Ass'n, St. Louis, Mo., three No. 6.

Edison Electric Illg. Co., Brooklyn, N. Y., two No. 9.

The C. & G. Cooper Co., Mt. Vernon, Ohio, a number of our Nos. 4, 5 and 6 Filters to be used in connection with their engines.

McIntosh, Seymour & Co., Auburn, N. Y., a number of our Nos. 5, 6, 7 and 8 Filters to be used with their engines.

The Carnegie Steel Co., New Castle, Pa., nine No. 7.

Honolulu Rapid Transit & Land Co., Honolulu, H. I., two No. 4.

The National Steel Co., Youngstown, O., seven No. 6.

La Belle Iron Works, Steubenville, Ohio, six No. 6.

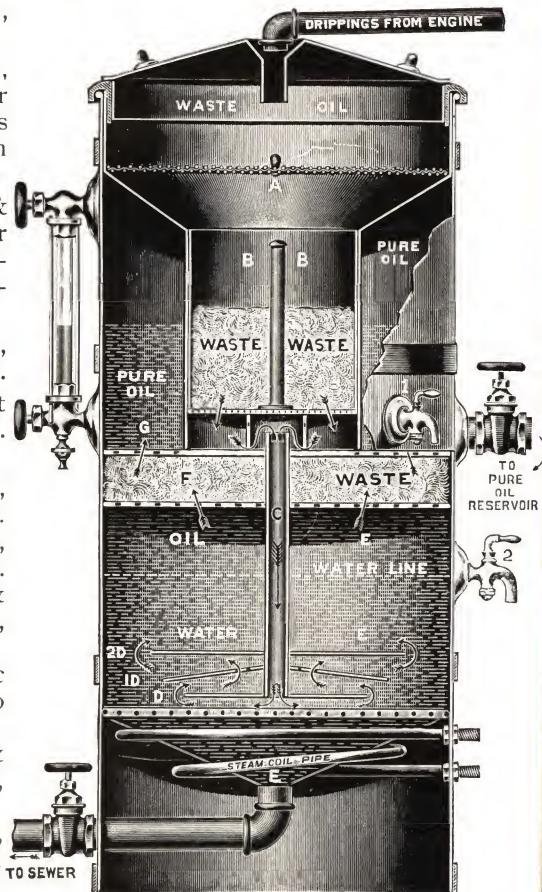
The Republic Iron & Steel Co., Youngstown, Ohio, four No. 6.

The Boston Electric Light Co., Boston, Mass., two No. 6.

The Mexican Gas & Electric Co., Mexico City, Mexico, two No. 4.

Raritan Copper Works, Perth Amboy, N. J., six No. 6.

The Cambria Steel Co., Johnstown, Pa., three No. 6.



The Cross Oil Filter "Style A"

We also recommend the "Style A" for use with oiling systems, as we have sold a large number of this pattern during the last few years for this purpose.

In this catalogue we illustrate and describe our Burt Oil Filtering System. Where desired, the Cross "Style A" can be used in place of the "Unit Filter" in connection with this system, and we will guarantee the results to be satisfactory in every way.

Our "Style A" is used by some of the largest power plants in the world, and is so constructed that it can be used with or without an oiling system.

### ***Price List Cross Oil Filter, "Style A"***

Strictly net, F. O. B. Akron, Ohio

SIZE	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Holding Capacity Dirty Oil (Gallons)	Diameter (Inches)	Height (Inches)	Capacity Pure Oil (Gallons)	Net Weight (Pounds)	Gross Weight (Pounds)	Diameter of Crate (Inches)	Height Crate (Inches)
No. 1	20 to 30	\$35.00	7	18	36	11	63	108	24	38
No. 3	40 to 50	65.00	17	24	42	20	100	200	33	46
No. 4	60 to 70	80.00	26	30	54	37	163	350	54	57
No. 5	70 to 90	95.00	32	33	56	49	196	409	54	59
No. 6	100 to 120	110.00	45	35	60	60	220	450	66	61
No. 7	120 to 150	130.00	52	35	74	75	250	500	66	76
No. 8	150 to 200	165.00	57	40	76	90	350	680	72	76

For larger filters see our Unit Type.

See trial offer and guaranty on page 14.

In comparing prices, note height and diameter of our filters, also that we absolutely guarantee capacity as above rated.

At the above prices we will furnish any size gate valves or threaded cocks desired; and will also make any reasonable changes desired in the construction of the filters so as to meet individual requirements.

Filter can be used with or without water.

## The Cross Oil Filter, "Style B"



N many power plants water becomes mixed with the waste lubricating oil, and considerable difficulty is often experienced in filtering this mixture. We not only recommend our "Style B," but guarantee it to separate water automatically from the waste oil and at the same time to clean the oil so that it can be used over and over again.

This filter is no experiment, as it has been on the market for a number of years and is used by some of the very largest corporations—many of whom have sent repeat orders. Among them are the following:

Westinghouse Air Brake Co., Pittsburgh, Pa., one No. 5.

National Cash Register Co., Dayton, Ohio, four No. 4.

U. S. Steel Corporation, Sharon, Pa., two No. 6.

Jones & Laughlin Steel Co., Pittsburgh, Pa., one No. 6.

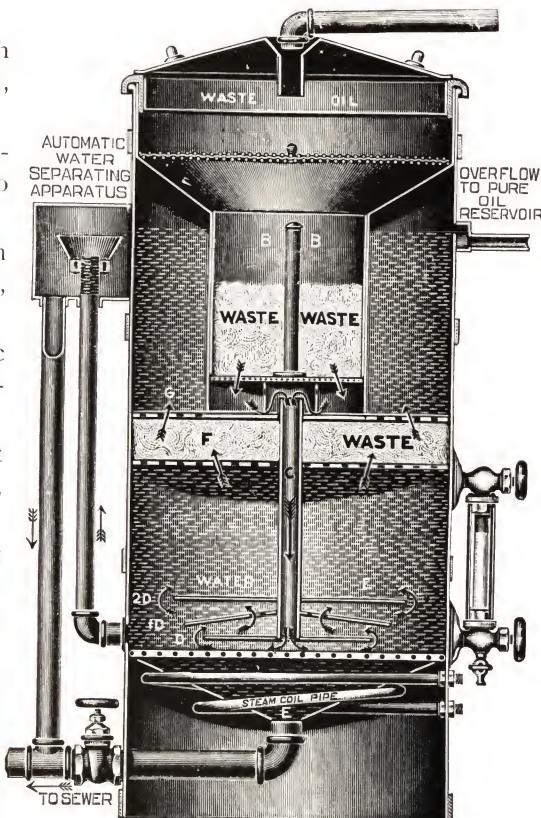
Cleveland Electric Illuminating Co., Cleveland, Ohio, four No. 8.

Republic Iron & Steel Co., Youngstown, Ohio, six No. 6.

Schwarzchild & Sulzberger Co., Chicago, Ill., one No. 3, two No. 4.

Johnstown Electric Light Co., Johnstown, Pa., one No. 6.

Edison Electric Light Co., Philadelphia, Pa., one No. 6.



The Cross Oil Filter "Style B"

Our "Style B" Filter will also take the condensed water and oil from oil separators and exhaust heads and successfully separate the oil from the water and filter the oil perfectly, so that it (the reclaimed cylinder oil) will make an excellent lubricant for pumps and other machinery. We do not recommend the reclaimed cylinder oil for re-use in the cylinder of steam engines.

If the waste oil contains water, it is automatically separated after it passes down tube C (see sectional cut) and reaches the bottom plate, as the oil being lighter than water, immediately rises when it reaches the bottom of the filter, and the surplus water passes into the tube which leads to the automatic water separating device.

### ***Price List Cross Oil Filter, "Style B"***

Strictly net, F. O. B. Akron, Ohio

SIZE	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Holding Capacity Dirty Oil (Gallons)	Diameter (Inches)	Height (Inches)	Capacity Pure Oil Chamber (Gallons)	Net Weight (Pounds)	Gross Weight (Pounds)	Diameter of Crate (Inches)	Height of Crate (Inches)
No. 1	20 to 30	\$40.00	7	25	36	11	70	150	31	38
No. 2	5 to 10	25.00	3	18	30	3	30	78	25	32
No. 3	40 to 50	70.00	17	31	42	20	96	246	40	46
No. 4	60 to 70	90.00	26	37	54	37	190	410	51	57
No. 5	70 to 90	110.00	32	40	56	49	215	348	61	59
No. 6	100 to 120	130.00	45	42	60	60	226	484	73	61
No. 7	120 to 150	150.00	52	42	74	75	270	500	73	76
No. 8	150 to 200	180.00	57	47	76	90	395	730	79	76

For larger filters see our Unit Type with automatic water separator.

See trial offer and guaranty on page 14.

In comparing prices, note height and diameter of our filters, also that we absolutely guarantee capacity as above rated.

In ordering the "Style B" Filter it is advisable to state the exact requirements and conditions under which the filter will be operated.



## *The Burt Oil Filtering System*

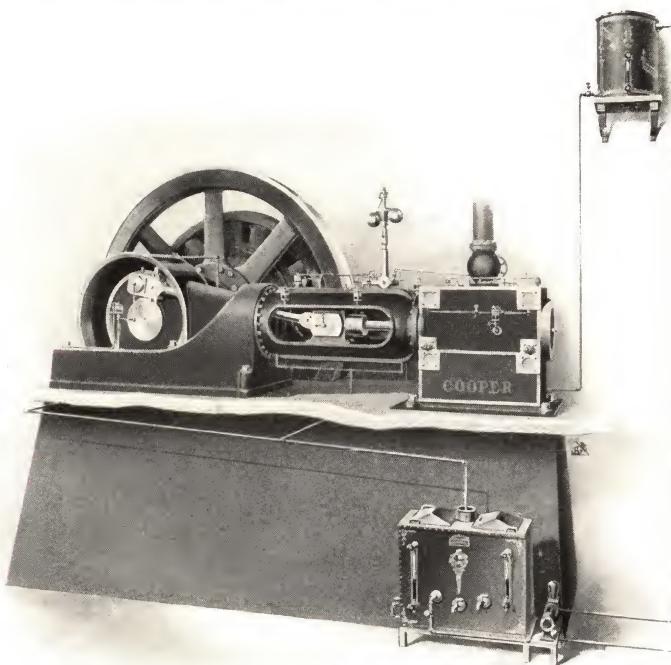
N the system illustrated on next page, the oil is fed to the different bearings by gravity from the overhead oil reservoir. After passing through the bearings it is piped to the oil filter or filters in the basement, and after being purified it is again pumped to the reservoir, making the process automatic and requiring only very slight attention. The flow of oil is continuous, and the machinery thus gives the very best results, as a liberal supply of oil can be used in all the bearings without danger of loss. An overflow pipe is attached to the pure oil reservoir, so that, if desired, the oil can be run into the filter, thus preventing overflow when the pure oil pump is in operation.

An equipment such as is here illustrated will save from 70 to 90 per cent. over hand oiling, as the oil is handled automatically and the bearings are supplied with a liberal quantity of oil, thus reducing friction and expense for repairs.

One very important feature of the Burt Oil Filtering System is that it can be constructed and put into operation by any engineer, without its being necessary to send experienced workmen for that purpose to the power plant. We will furnish the Oil Filters, Oil Reservoirs, and the Oil Pump. The piping can be easily installed at odd times by the engineer. In most plants the oiling devices previously used on the engine can be used with this system; but where such is not the case, suitable devices can be secured from the engine manufacturers. By this plan a complete oiling system can be installed in an economical manner.

Where our Burt Oil Filtering System is installed, we will absolutely guarantee that the results will be entirely satisfactory in every respect. Our experience of the past twenty years in the oil filter business, during which period we have enjoyed the largest trade of any concern in existence in our line, and have been constantly in touch

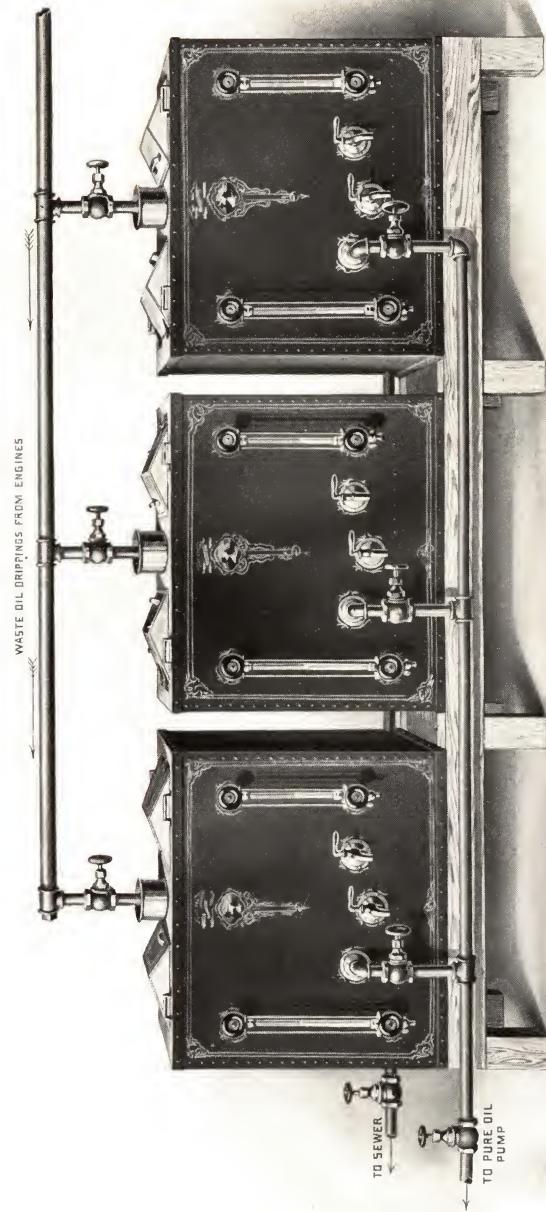
with the most prominent engineers and power plant contractors in the world, enables us to assert with confidence that a good gravity oiling system will not only give perfect results, but that it can be installed at a very small expense, relatively speaking. We shall take pleasure, on request, in referring those interested to concerns having some of the largest power plants in the world, who have used our system for years with entire satisfaction—con-



Usual Method of Installing Gravity Oiling System

cerns who install only the best type of machinery, and who would certainly discard our system at once if it did not show good results.

As all engineers are aware, the most important and vital part of an oiling system is the Oil Filter, and it naturally follows that if the filter fails to filter the oil perfectly, the system will be a complete failure. For this reason, special care should be given to the selection of a suitable filter for use with an oiling system. The filtered oil must be free from all grit and dirt, so as to avoid clogging of the oil cups or feed pipes. If the



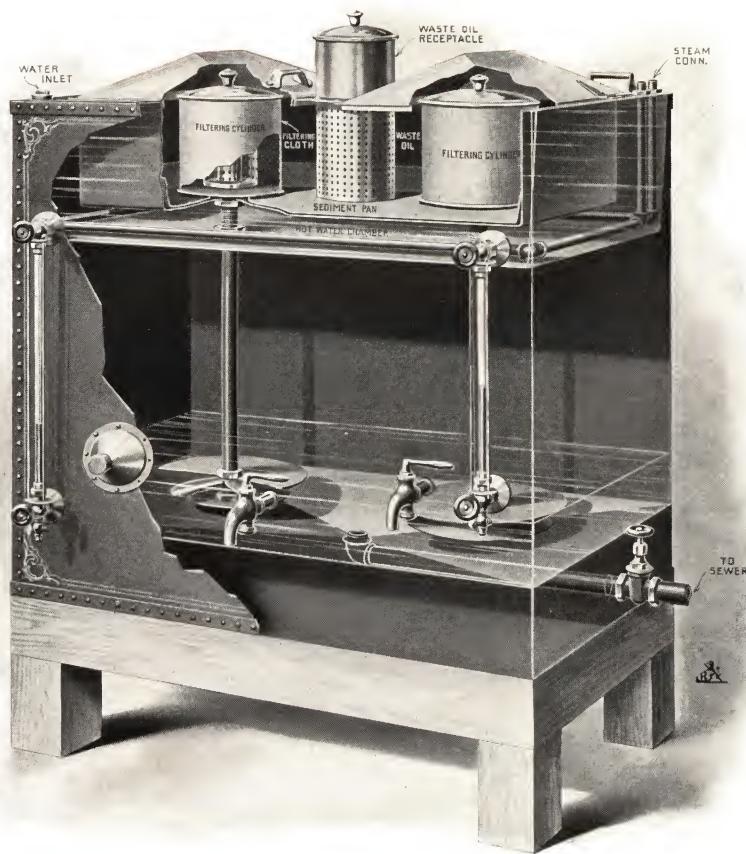
Three Units Connected and Operated as One Filter

filtered oil should contain any grit or dirt whatever, it would increase the friction and wear of the machinery, and for this reason we court the most careful examination as to our claims for the Burt Oil Filter, "Unit Type."

In our Burt Oil Filter, "Unit Type," the dirty oil enters the waste oil receptacle (see sectional cut) and passes through the small perforations, flowing thence horizontally to the two filtering cylinders, and in passing to these cylinders the heavy impurities fall by gravity into the sediment pan, and therefore do not clog up the filtering cloths or filtering material. Each cylinder is wrapped with a cloth through which the oil must pass before entering the filtering cylinder. After passing through a quantity of animal bone-black, the oil passes down through the two tubes into the bottom of the filter. By means of plates attached to the bottom of the tubes, the oil is spread out in a very thin film and is thoroughly washed by the water, and any remaining impurities in the oil drop to the bottom of the filter and can be flushed out at any time desired by simply opening the gate valve, which connects with the sewer.

We desire especially to call the attention of prospective customers to the hot-water chamber in the upper part of the Burt Filter. This important feature is found only in the Burt style, and is fully covered by letters patent. The object in heating the oil before filtering, is to cause it to flow more freely, thus increasing the speed of filtration and the filter capacity. When the dirty oil is heated, it spreads out, and most of the dirt and grit then falls into the sediment pan. Those acquainted with other makes of filters will readily understand that this is a decided advantage, as in other filters the bulk of the sediment is at the bottom of the filter instead of at the top, where it can be readily removed without interfering in any way with the supply of pure oil for the oiling system.

Owing to the effect of the hot water chamber at the top, our Burt Oil Filter, "Unit Type," will filter from 50



Sectional View

to 75 per cent. more oil than any other make on the market today occupying an equal amount of space. We also absolutely guarantee that this filter will handle successfully the heaviest grades of oil, such as lard, crank-case, gas engine, cylinder, etc. To those who have bought other oil filters for the purpose of cleaning heavy oils with the result that they have proved a failure, we will be glad to send the Burt for trial, subject to approval. The heating arrangement in this filter will make the heaviest grade of oil flow freely and filter easily. Hence, it is hardly necessary to say that the Burt will filter common engine or

machine oil to perfection. In ordering a filter it will, therefore, be true economy to purchase one that is guaranteed to filter ALL grades of oil successfully.

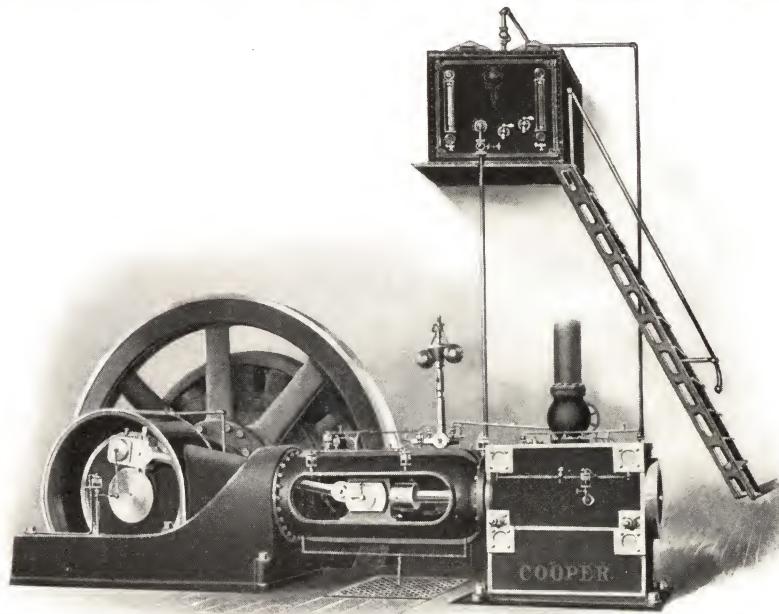
In the construction of our "Unit Type" of filter we use heavier iron (made out of one solid sheet) than in our regular patterns, and the body is riveted to a heavy wrought iron frame, making the filter extra strong and durable. All seams are lapped, riveted and soldered. Both the upper and the lower part of filtering cylinder are made of heavy cast iron, nickel plated on top. The two tubes are made of wrought iron. The fittings are of the best quality throughout, and every filter is guaranteed against defective material or poor workmanship. This style of filter is painted dark blue, hand decorated in gold, and is an ornament to any first-class power plant.

Our "Unit" Filters are so constructed that they can be used with or without an oiling system, a feature which should have full consideration by every prospective buyer of an oil filter. The latest engineering practice indicates that within a few years almost every power plant of average size will be equipped with an oiling system of some description. Our "Unit Filters" can, if desired, be installed and operated at first without being connected to an oiling system, and if, later on, an oiling outfit is added to the plant, pipe connections can be readily made to the filter without any extra expense.

In cleaning our Burt Filter, "Unit Type," it is not necessary to shut down the whole system and disconnect the pipe connections. If more than one unit is used, all that is necessary is to shut off the flow of oil to the filter to be cleaned, allowing the other filter or filters to handle an extra amount. Where only one filter is installed, the cleaning operation is very simple. The cloth around one cylinder can be removed instantly, and if the filtering material also needs to be removed, unscrew one cylinder and screw a plug which is furnished for that purpose with each filter, into the tube, so as to keep the dirty waste oil from flowing into the filter. The other cylinder will

continue in operation while the first is being cleaned. This is a very important feature, as the filtering material can be changed without stopping the supply of pure oil, while the oiling system will be in continuous operation supplying the different bearings.

Our Burt Filter also possesses the feature of being so constructed that any kind of filtering material can be used in the cylinder, such as white waste, sponges, excelsior,



Burt Oil Filtering System, with Filter located above Engine

raw wool, etc. Each cylinder is wrapped with a filtering cloth and contains a quantity of animal bone-black. Animal bone-black is used in all oil refineries to purify lubricating oil, and we therefore believe it to be a suitable filtering medium. This material can be washed out with hot water or gasoline and used over and over again, so that when it is used there is practically no expense for filtering.

Some engineers prefer to clean the oil by means of filtering cloths; and in that connection we wish to state that our "Unit Type" is especially suitable for the use of

that filtering medium, as any number of cloths can be wrapped around the filtering cylinders, and in changing same nothing but the cloths need be removed. The cloths can be instantly removed while the filter is in operation, without changing or touching a single pipe connection. Those who prefer filtering cloths as a filtering medium will find this filter ideally adapted for their purpose.

We especially recommend our Burt Filter for use with gas or gasoline engines of large capacity, as the hot water from the engine cylinders can be used for the purpose of heating the oil. Where gas engines of large size are used, the "Unit Filter" can be employed with excellent results, as we furnish the filter with special connections so that the hot water from the gas engine cylinder can be circulated in the upper part of the filter.

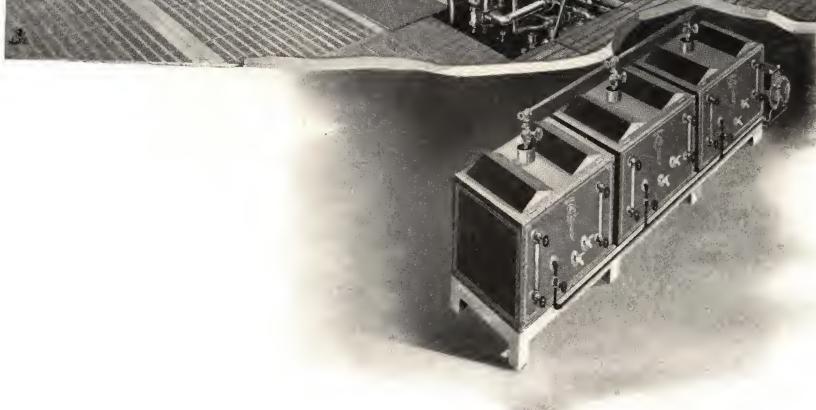
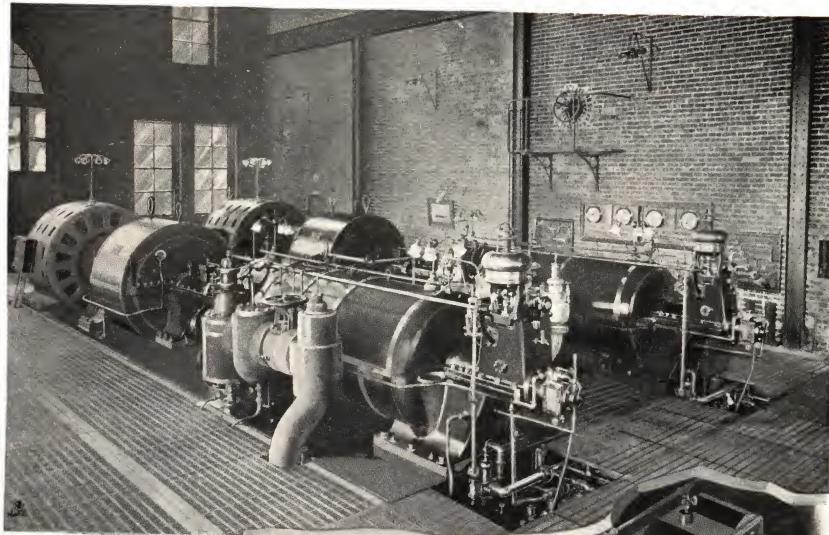
### ***Unit System***

As all engineers are aware, the tendency of power plant construction at the present time is towards very large plants, which, of necessity, require oil filtering apparatus of large capacity, but which, at the same time, occupy a comparatively small space. To satisfy this demand, we recommend our Burt Oil Filter, "Unit Type," as being able to meet all the exacting requirements of the engineering profession. Each Unit is so constructed that it can be used in connection with, or independent of, an oiling system, so that in case additional machinery is added to a power plant at any time and increased filtering capacity becomes necessary, any number of Units can be added, and can either be operated together as one filter or separately, as desired, without in any way changing the pipe connections. On page 26 we illustrate three "Units" connected and operated as one filter. The water in the bottom of the three "Units" can be drained into the sewer by simply opening one valve, and the supply of pure oil can also be regulated by one valve. Any number of filters can be placed in a row or in any position desired, and the piping arranged accordingly.

Every engineer will appreciate the advantage of installing our "Units," as the oil filtering system must necessarily be increased in proportion to the growth of the power plant. Any person who is considering the installing of an oil filter of moderate capacity would do well to put in our "Unit" Filter, even if it is not the intention to install an oiling system at the same time, as this filter can be operated without an oiling system; and if after a time an oiling system is installed, pipe connections can be easily made without one cent of extra expense. In many power plants of large size, only one-third or one-fourth of the machinery which it is anticipated will be required eventually is installed at the start; and under the old practice, it was customary to install at once filters of very large capacity which would be only partially operated. With the "Unit System" one "Unit" can be ordered at first, and as the machinery is increased other "Units" can be added and connected up, and by that means the oil filtering system is increased gradually as becomes necessary.

We recommend our "Unit Type" especially for use in connection with steam turbines, for the reason that an exceptionally large quantity of oil is used on these turbines; and the oil, being very thin and not dirty, our "Unit" will filter a very large quantity. The oil can be filtered in a short time, owing to the fact that we make a slight change in the arrangement of the filtering material, and also by the use of the hot water chamber in the upper part of the filter the capacity is greatly increased. Consequently a "Unit Type" filter of relatively small size will answer the purpose for use in connection with steam turbines, while if any other style is used, one or more filters of large size would be required; otherwise the oil could not be filtered fast enough.

We have sold a large number of our "Unit Filters" for use in connection with steam turbines; among recent installations being for the De Laval Steam Turbine Co., Trenton, N. J.; The B. F. Goodrich Co., Akron, O.; Diamond Rubber Co., Akron, O.; New Orleans Rail-



**Battery of three Burt Unit Type Oil Filters used in connection with two 1000 K. W. Westinghouse Steam Turbines**

way & Light Co., New Orleans, La. (2); Bahia Electric Tramway Co., Bahia, Brazil; De Beers Con. Mining Co., Kimberly, South Africa; Syracuse Lighting Co., Syracuse, N. Y.; Columbia Electric Railway, Light & Power Co., Columbia, S. C. (2); Fort Wayne & Wabash Valley Traction Co., Fort Wayne, Ind. (3), and others, names of which will be cheerfully furnished upon application.

The Philadelphia Rapid Transit Co. have thirty-six (eleventh order) of our "Unit Type" oil filters and a

number of them are used in connection with Westinghouse Steam Turbines and the results have been very satisfactory.

We quote from a letter recently received from the Citizens Gas & Electric Co., Waterloo, Ia., as follows:

"Replying to your inquiry of the 6th, relative to test of "Unit" Oil Filter purchased from you, wish to say this filter is operating on our 500 K. W. Curtis Turbine. In filtering continuously the top-bearing oil, we find it very satisfactory and doing excellent work."

In making inquiry as to the use of our "Unit Type" filter in connection with steam turbines, kindly advise the quantity of oil used per minute and the space and size of the room which can be devoted to the filters, and we will submit a proposition and sketch showing location of the filters and the number required.

The following letter from the Carnegie Natural Gas Co. (which is one of the Pittsburgh group of companies owned by the United States Steel Corporation) is one that we value highly. The recommendation of a concern of such high standing should have much weight with those considering the purchase of oil filters.

CARNEGIE NATURAL GAS CO.

Pittsburgh, Pa.

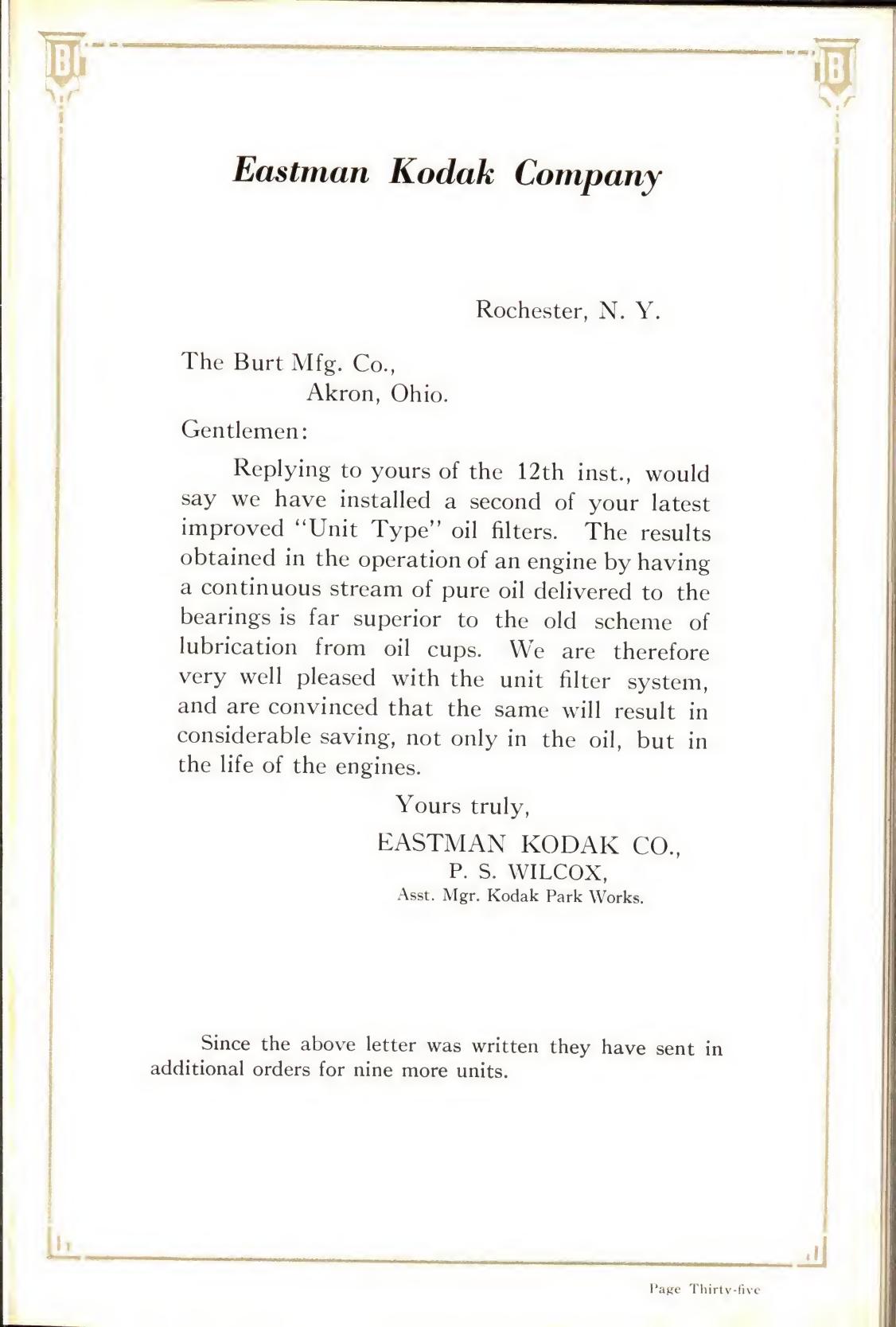
The Burt Manufacturing Co., Akron, Ohio.

Gentlemen: Replying to your inquiry of the 4th instant, beg to advise that the "Unit" Oil Filter purchased from you and installed at our Waynesburg Gas Compressing Station some time since, is reported by our chief engineer as doing excellent work.

Yours truly,

N. J. JOHNSTON, Supt.

The following letter from the well-known Eastman Kodak Company, in reference to the second "Unit Type" filter which we installed in their plant, is highly prized by us because of the terse and convincing testimony it contains as to the economy effected by the use of our filtering system:



## *Eastman Kodak Company*

Rochester, N. Y.

The Burt Mfg. Co.,  
Akron, Ohio.

Gentlemen:

Replying to yours of the 12th inst., would say we have installed a second of your latest improved "Unit Type" oil filters. The results obtained in the operation of an engine by having a continuous stream of pure oil delivered to the bearings is far superior to the old scheme of lubrication from oil cups. We are therefore very well pleased with the unit filter system, and are convinced that the same will result in considerable saving, not only in the oil, but in the life of the engines.

Yours truly,

EASTMAN KODAK CO.,  
P. S. WILCOX,  
Asst. Mgr. Kodak Park Works.

Since the above letter was written they have sent in additional orders for nine more units.

Another prominent installation of our "Unit" Filter is an equipment of two which we supplied for a large and modern office building recently erected in Cleveland, Ohio, for John D. Rockefeller, of the Standard Oil Co. Their letter shows what they think of our filter.

ROCKEFELLER BUILDING  
Superior and Bank Streets

Cleveland, O.

Messrs. The Burt Mfg. Co., Akron, O.

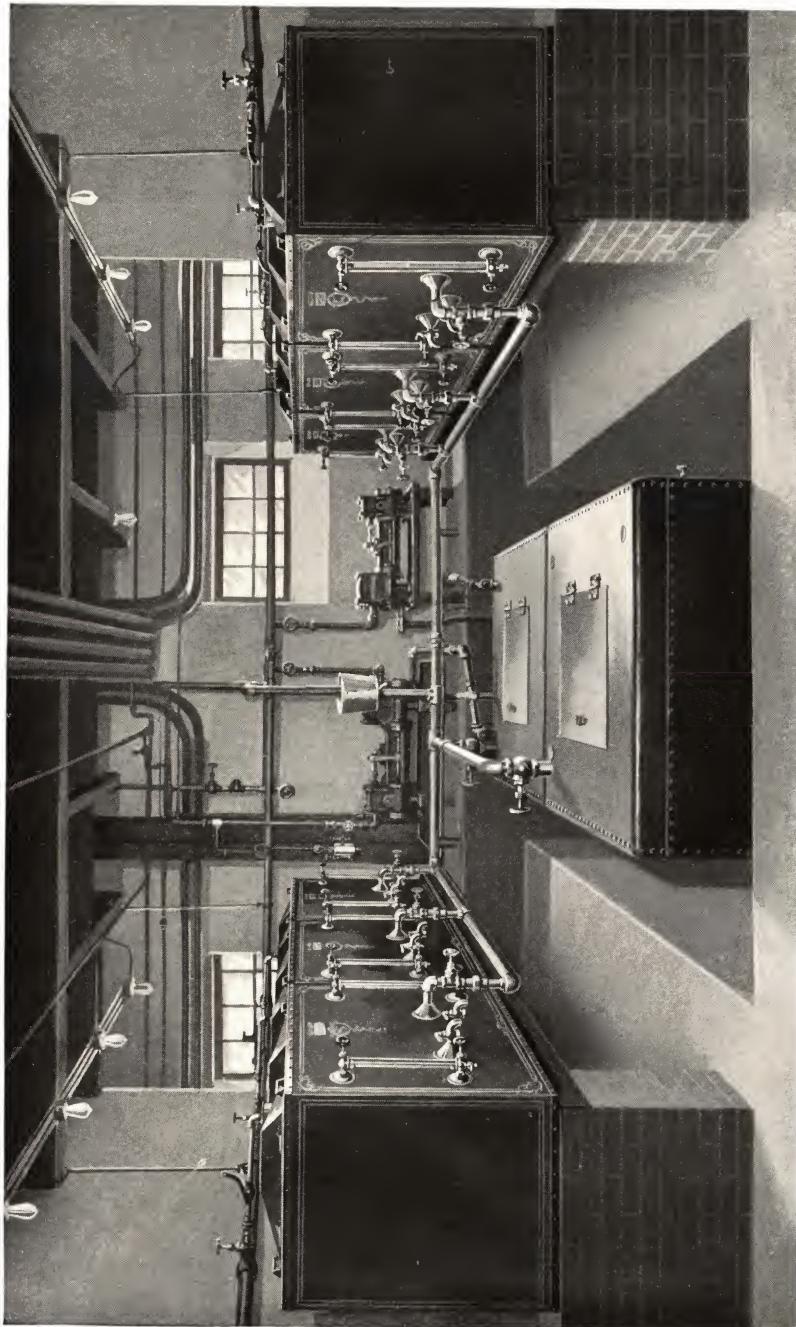
Replying to yours of the 8th inst. as to how we are pleased with the two "Unit" Oil Filters we purchased from your house, would say that we are very much pleased with them. I do not see how any large plant that is using a large quantity of oil which is liable to become filled with sediment and grit can afford to be without them. The oil after having passed through the filter seems to be free from this damaging matter.

Yours truly,

CHARLES F. SIEGRIST, Chief Eng.

On opposite page we illustrate a gravity oiling system as installed by us at the 13th and Mt. Vernon Sts. power house of the Philadelphia Rapid Transit Co., Philadelphia, Pa. This company controls all the traction lines in Philadelphia and operates eight large, modern power plants. Being recently in the market for a number of large oil filters, the company's engineers made a personal inspection of all the leading makes, and then placed an order with us for six of our Burt "Unit" Oil Filters.

A little later, after a most thorough and careful test, they found our "Units" to give such good satisfaction that they placed an order with us for four more, to be installed in their new power house at 2nd Street and Lehigh Ave., for use in connection with their 33,000 H. P. Westinghouse Steam Turbines. Before accepting our filters, a chemical analysis of the filtered oil was made, and it was found to be of good color, free from dirt and grit, and entirely suitable for being used over again.



Reproduction of photograph showing an installation of six "Unit" Oil Filters in the 13th and Mt. Vernon Sts. Power House of the Philadelphia Rapid Transit Co., Philadelphia, Pa., U. S. A. Now have thirty-six Units in five power houses. (11th order.)

On August 22nd, 1906, after a year's thorough and careful test with ten "Unit" Filters, this Company placed an additional order with us for six more, and on October 12th, 1906, they ordered four more; February 13th, 1907, six more, and since then ten more, making thirty-six "Units" now installed in their power houses.

The extreme filtering capacity we claim for six "Units" is 2,400 gallons of oil in 24 hours. The Philadelphia Rapid Transit Co's six "Unit" filters, as shown in illustration, however, are filtering regularly about 3,000 gallons every 24 hours; and the Company states that the filters could easily take care of 3,500 to 4,000 gallons in 24 hours, if necessary, which shows what our latest and most improved filter is capable of when crowded to its full capacity.

Another large equipment of "Unit" Filters is an installation of seven furnished the Calumet & Hecla Mining Co., Calumet, Mich., the largest copper mining concern in the world. This concern first ordered three Units and later on installed four more, making a battery of seven in use in one plant.

If you want an oil filter with large filtering capacity, yet occupying small space, one that can be used with or without an oiling system, one that can be cleaned without stopping filtration, one that will filter perfectly all kinds of lubricating oil, one in which any kind of filtering material can be used, and one that has from 50 to 75 per cent. greater filtering capacity for the space occupied than any other made, you will make no mistake in placing your order with us for the "Unit."

When installing our oiling system, it is not essential that the plan shown on pages 25 and 30 be followed exactly, in order to insure satisfactory results. The Oil Filter, Oil Reservoir, and Oil Pump can be located so as to meet the particular requirements of any power plant.

In an engine house, for example, which has no basement or in which there is not sufficient room, the Oil Filter can be made to serve the purpose of an Oil Reser-

voir as shown in illustration on page 30. The filter is placed on an elevated platform above the engine, in which case the supply of pure oil will flow directly from the filter to the bearings. The dirty or waste oil is collected in a small tank or pit underneath the engine and from there the oil is pumped to the filter above. The pump can be placed in any convenient location. A valve should be placed in the pure oil feed line which leads to the bearings, so that the flow of oil can be shut off when desired. Each of our "Unit" Filters has storage capacity for 90 gallons of pure oil, which is ample for the average oiling system.

In placing the oil reservoir it is necessary that it should be elevated to such a height as to give the proper "head" or pressure to the oil; and the same rule applies to the placing of the filter when it takes the place of a storage tank.

In installing an oiling system of any description it is well to provide ample filtering as well as storage capacity, so that there will be no danger of crowding the system, and provision should be made for increased future requirements.

In this connection we wish to state that our "Unit" Filter can be used in connection with any oiling system. Those contemplating the installation of an oiling outfit of any description can therefore safely specify our Burt Oil Filter, "Unit Type." Our filters can be secured from all the leading engine builders, power contractors, oil companies and mill supply dealers.

Where any difficulty is experienced in installing our oiling system, or where the conditions in a power plant are such that a special system is required, we shall be glad to place our experience at the buyer's disposal, free of charge, upon receipt of a blue-print or rough sketch showing the location of the machinery to be oiled. We have installed oiling systems in the largest power plants in all parts of the world, and are confident our suggestions will prove of benefit to customers.

This partial list of users of our Burt Oil Filter, "Unit Type," indicates that the largest and most prominent concerns in the country think it is the most modern oil filter on the market today.

Philadelphia Rapid Transit Co.,  
Philadelphia, Pa., (36), eleventh order.

United States Steel Corporation,  
Pittsburgh, Pa., (38), twentieth order.

Calumet & Hecla Mining Co.,  
Calumet, Mich., (9), third order.

Singer Manufacturing Co., St. Johns, Can.

New York Edison Co., New York City.

Pennsylvania Steel Co., Steelton, Pa., (2).

Rome Brass & Copper Co.,  
Rome, N. Y., (2).

Mutual Life Insurance Co., New York, (2).

Jacob Ruppert Brewing Co.,  
New York, (2).

American Brass Co., Ansonia, Conn., (3).

Morgan & Wright Co., Detroit, Mich., (2).

Dartmouth Mfg. Corporation,  
New Bedford, Mass., (3), third order.

St. Louis Portland Cement Co.,  
St. Louis, Mo., (3).

U. S. Post Office, Washington, D. C.

Bahia Tramway Co., Bahia, Brazil.

Consumers Electric Co., New Orleans, La., (2).

New Orleans Ry. & Light Co.,  
New Orleans, La., (2).

Standard Oil Co., (12), tenth order.

Eastman Kodak Co., Rochester, N. Y., (7), fourth order.

Thomas Steel Co., Niles, Ohio, (5), third order.

Detroit Iron & Steel Co., Detroit, Mich., (4), third order.

Nazareth Cement Co., Nazareth, Pa., (7).

Republic Iron & Steel Co.,  
Youngstown, Ohio, (5), third order.

Worth Brothers Co., Coatesville, Pa., (3).

Fort Wayne & Wabash Valley Traction Co., Fort Wayne, Ind., (3).

Aluminum Co. of America, New Kensington, Pa., (3), third order.

Memphis Street Railway Co.,  
Memphis, Tenn., (8), third order.

Detroit United Ry. Co., Detroit, Mich., (4), third order.

National Starch Co., Waukegan, Ill., (4).

American Smelting and Refining Co., New York City, (3).

Buick Motor Co., Flint, Mich., and Jackson, Mich., (5), fifth order.

International Harvester Company, Chicago, Ill., (3).

Standard Steel Car Co., Butler, Pa., (2).

National Cash Register Co., Dayton, Ohio.

Oklahoma Gas & Electric Co.,  
Oklahoma City, Okla., (2).

Jones & Laughlin Steel Co.,  
Pittsburgh, Pa., (2).

Berwind-White Coal Mining Co.,  
Windber, Pa., (4).

Raritan Copper Works, Perth Amboy, N. J., (7), fourth order.

Cleveland Worsted Mills Co.,  
Cleveland, Ohio, (3).

Bahama Timber Co., Ltd., Wilson City, Abaco, The Bahamas, (2).



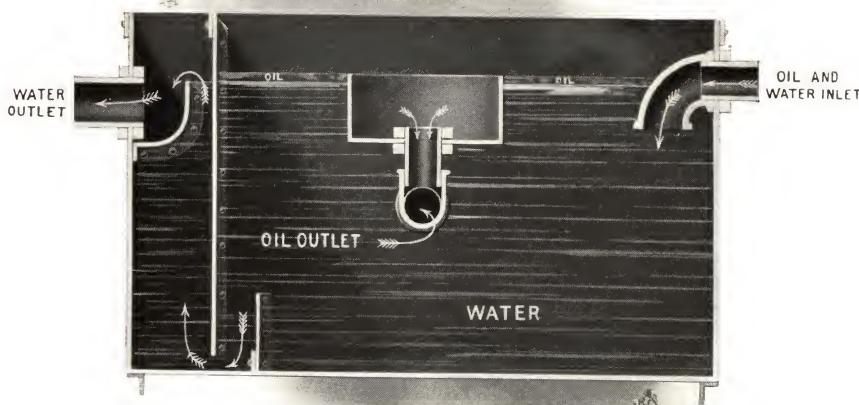
### ***Price List Burt Oil Filter, "Unit Type"***

Strictly net, F. O. B. Akron, Ohio

Size	Units	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Pure Oil Chamber (Gallons)	Waste Oil Chamber (Gallons)	Water Chamber (Gallons)	Length (Inches)	Width (Inches)	Height (Inches)
No. 15	1	250 to 400	\$130.00	90	20	40	42	28	36
No. 16	2	500 to 800	260.00	180	40	80	84	28	36
No. 17	3	750 to 1200	390.00	270	60	120	126	28	36
No. 18	4	1000 to 1600	520.00	360	80	160	168	28	36
No. 19	5	1250 to 2000	650.00	450	100	200	210	28	36
No. 20	6	1500 to 2400	780.00	540	120	240	252	28	36

Upon receipt of information as to the quantity and kind of oil used per hour, and the kind of machinery to be oiled, we will be pleased to submit quotations covering filters required.

Filters can be used as a dry filter by eliminating the water in bottom of filter.



## *The Burt Automatic Water Separator*

Where water is mixed with the waste oil, such as would be secured from an oil separator, exhaust head, or from any other source, we are prepared to furnish our Burt Automatic Water Separator as illustrated above.

This separator can be used in connection with our oil filters (made round to set on top of filter), or separately as may be desired, and is made either round or oblong.

When used in connection with our No. 15 Unit Type Filter, it is made a part of the filter itself, and takes the place of the waste oil receptacle.

The operation of this water separator is very simple, all that is necessary being to pour in water at the oil and water inlet until it runs out at the water outlet, when it will be ready for continuous operation, the water passing off to the sewer or other convenient place, and nothing but the oil to be filtered passing into the filter.

### *Price List Burt Automatic Water Separator (oblong)*

Strictly net, F. O. B. Akron, Ohio

Capacity per minute	Price	Length (Inches)	Height (Inches)	Width (Inches)
10 gallons.....	\$20.00	22	16	7 1/4

Upon application we will be pleased to make quotations on the round type of separator for any size filter desired.

# *The Burt Unit Oil Filter, "Gary Type"*



HIS filter was designed especially for the United States Steel Corporation for use at their immense steel works at Gary, Ind., and after months of exhaustive tests by their mechanical engineers they have favored us with additional orders, proving the superior merits of this type of filter when an immense quantity of oil is used.

Their first order called for five Units, and after six months' trial they duplicated the order, and as we are now going to press we have their order for four more.

These filters are used in connection with a flush system of lubrication, the animal bone-black being removed and only the filtering cloths and water used as a filtering material, and each filter is cleaning 2,000 gallons of oil per hour, or 28,000 gallons per hour for the fourteen, making their oiling system the largest installation in the United States.

The outside shell of the "Gary" filter is made of No. 14 gauge galvanized iron, braced throughout with heavy angle iron, riveted and soldered, and the inside construction of No. 16 gauge, thus making them strong and durable. All fittings are extra heavy and are screwed into heavy brass flanges.

Filters are so constructed that any number can be operated as one and additional filters attached without changing any connections.

Where gas or gasoline engines are used the hot water can be used for the purpose of heating the hot-water chamber in the upper part of the filter.

Blue-Prints showing in detail the construction of filter will be sent upon request.

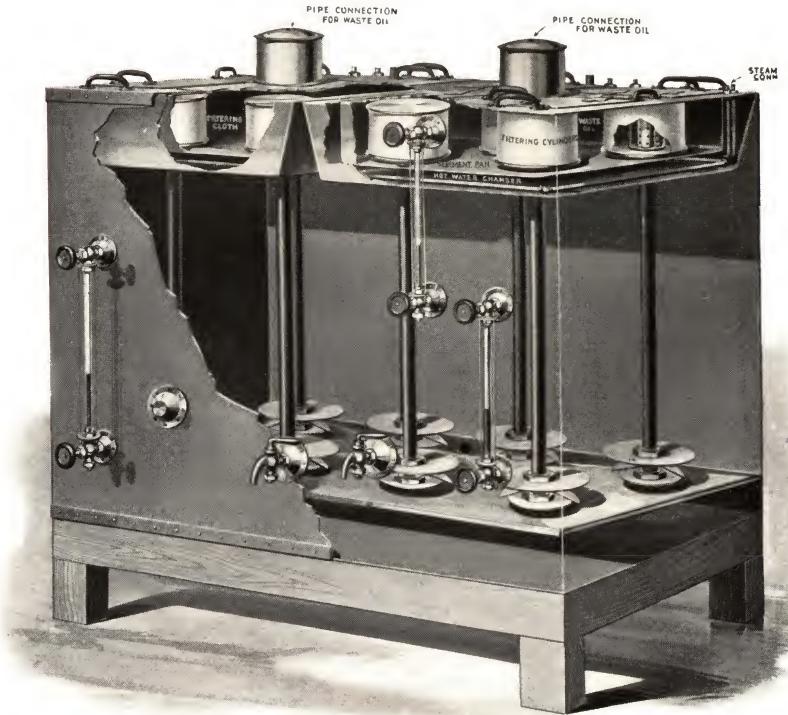
## *Price List Burt Unit Oil Filter, "Gary Type"*

Strictly net, F. O. B. Akron, Ohio

Size	Units	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Pure Oil Chamber (Gallons)	Waste Oil Chamber (Gallons)	Water Chamber (Gallons)	Length (Inches)	Width (Inches)	Height (Inches)
No. 30	1	1500 to 2000	\$400.00	490	90	110	72	42	60
No. 31	2	3000 to 4000	800.00	980	180	220	144	42	60
No. 32	3	4500 to 6000	1200.00	1470	270	330	216	42	60
No. 33	4	6000 to 8000	1600.00	1960	360	440	288	42	60

At a slight additional cost can be equipped with automatic water separator.  
Filter can be used with or without water.

## *The Burt Oil Filter, "Gary Type"*



Sectional view showing the Burt Oil Filter, "Gary Type," as designed for the United States Steel Corporation, Gary, Ind. Filter equipped with eight filtering tubes and outside shell made of No. 14 gauge iron. Automatic water separator can be furnished if desired.



## *The Burt Oil Filter, "Unit Type"*

(Small Size)



This filter is designed especially for power plants who wish a filter on the order of our No. 15 Unit, yet their requirements are such that this filter is too large and expensive.

Our No. 10 Unit will be found to meet such requirements, as it occupies a very limited space, yet has a filtering capacity of from 100 to 150 gallons per 24 hours. The No. 10 has one filtering tube instead of two, as in our No. 15. The principle of filtration is just exactly the same, and claims we make for our No. 15 will apply equally as well to the No. 10. If desired the Automatic Water Separator as described and illustrated on page 42 can be made a part of the No. 10 Unit.



## ***Price List Burt Oil Filter, "Unit Type"***

**(Small Size)**

Strictly net, F. O. B. Akron, Ohio

Size	Units	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Pure Oil Chamber (Gallons)	Waste Oil Chamber (Gallons)	Water Chamber (Gallons)	Length (Inches)	Width (Inches)	Height (Inches)
No. 10	1	100 to 150	\$80.00	50	10	11	24	24	36

Filter can be used with or without an oiling system, the same as our No. 15.

We also can furnish a round automatic water separator which is placed on top of filter at an extra cost of \$20.00.

## *The Burt "Double" Unit Oil Filter*

N many power plants two kinds of oil are required to be filtered and, although our regular filters can handle different oils, it is necessary to clean the filter when changing to another grade of oil, and for this reason we have designed our Double Unit especially for plants where it is necessary to filter two kinds of oil.

This filter is composed of two Units which operate the same as our regular Units, described in this catalogue. Each Unit operates independently of the other so that two kinds of oil can be filtered in the one filter at the same time.



Outside View



Sectional View

### **Price List Burt "Double" Unit Oil Filter**

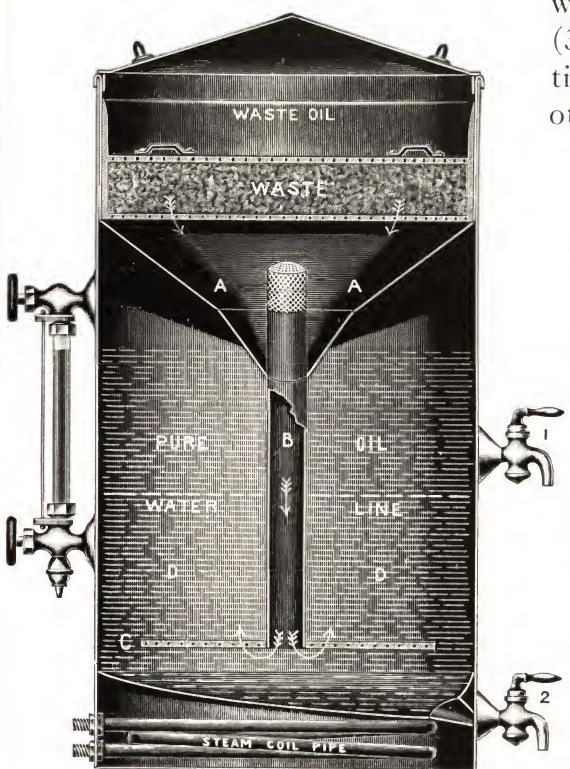
Strictly net, F. O. B. cars, Akron, Ohio

Size		Filtering Capacity per 24 hours	Price	Pure Oil Chamber (Each Unit)	Waste Oil Chamber (Each Unit)	Water Chamber (Each Unit)	Length (Inches)	Width (Inches)	Height (Inches)
40	1	100 to 150	\$150.00	45	10	20	42	28	36

We also can furnish automatic water separator same as on No. 10 Unit.

# The Warden Oil Filter

**W**O those of our customers who desire a filter of very simple construction and yet one that will give excellent results, we can recommend the Warden pattern. This filter can be cleaned very quickly without changing any of the connections or interfering with the supply of pure oil, and is so constructed that any kind of filtering material can be used. This filter is largely used by the United States Government and the British Government; also by such concerns as the Calumet & Hecla Copper Mining Co. (16 filters); Lehigh Valley Coal Co. (35); Alaska Treadwell Gold Mining Co. (5); United Gas Improvement Co. (13); Pittsburgh Plate Glass Co. (4); Grand Central Ry., London, Eng. (2); Messrs. Harmsworth Brothers, London (3); American Locomotive Co. (10); and many others.



## Operation

The bottom chamber (D) is filled with pure warm water, which is heated by means of a steam pipe passing through the filter under the false bottom. The waste oil is poured in at the top of filter (see cut). It then passes through the pan of waste, which collects nearly all of the impurities. From thence the oil passes into cham-

ber (A) and through the perforated tube (B) downward, in the direction shown by the arrows, and from there to perforated filter plate (C), where the increased weight of the water has a tendency to keep the oil back in the tube (B). However, the pressure of oil in chamber (A) forces it down and it spreads out across the under side of plate (C) in a very thin film, which constantly changes surface and grows thinner as it travels from the center to the outer edges of the plate, thus exposing every particle of waste oil to the action of the water. When the oil leaves the filter plate it is thoroughly mixed with the water, which washes it out, and from which all the remaining impurities are separated by gravity and settle in chamber (D), from whence they can be removed through cock No. 2. When the oil separates at the water line it is pure and can be drawn off from cock No. 1.



### *Price List the Warden Oil Filter*

Strictly net, F. O. B. Akron, Ohio

No.	Capacity	Price	Holding Capacity Dirty Oil (Gallons)	Diameter (Inches)	Height (Inches)	Capacity Pure Oil Chamber (Gallons)	Net Weight (Pounds)	Gross Weight (Pounds)	Diameter of Crate (Inches)	Height of Crate (Inches)
1	20 to 30	\$30.00	7	18	30	16	40	100	24	32
2	5 to 10	20.00	3	12	26	7	29	75	19	28
3	40 to 50	60.00	17	24	36	32	90	240	33	40
4	60 to 70	75.00	26	30	48	73	140	344	54	51
5	70 to 90	90.00	32	33	52	113	190	390	54	55
6	100 to 120	110.00	45	35	56	152	220	430	66	57
7	120 to 150	130.00	52	35	60	177	237	500	66	62
8	150 to 200	165.00	57	40	64	230	345	670	72	64

If desired we can furnish the Warden Filter with connections for oiling system at prices quoted on page 21.

# The American Oil Filter

**H**IIS style of filter is built along the lines of our Burt "Unit" Filter, with the exception that it is round instead of square-bodied, and each filter has only one filtering cylinder instead of two. The claims made for our "Unit" Filter in the preceding pages will apply equally to our American pattern. This filter we can recommend especially for cleaning lard, cylinder, crank-case, and other grades of heavy oil. Most other styles of filters are wholly or in great part unable to cope with heavy oils, because the latter cause clogging so readily. In the American Oil Filter the hot water chamber at the top surrounds the unfiltered oil and renders it thin and easy flowing, so that what is difficult or impossible in the case of other filters is easily accomplished by the American.

The operation of the American Filter is as follows:

Pour warm water in at the top until it flows out of faucet 2, then fill the upper chamber with water and make steam (exhaust) connections. Fill Chamber A with waste oil. The oil filters horizontally, and the heavy particles of dirt and grit settle in the sediment pan. After passing through the filtering material into the cylinder, the oil passes down through tube B to filter plate D, where the pressure of the oil above overcomes the resistance offered by the weight of the water. The oil then spreads out in a very thin film, becoming thinner and thinner as it travels from the center to the outer edge of plate D. Every part of the waste oil is thus exposed to the action of water. This is repeated as the oil flows in like manner against plates D' and D''. The dirt or grit that is washed out in the water settles by gravity in chamber E, whence it can be drained off to the sewer by simply opening the valve. The pure oil is drawn from faucet 1.



## The American Oil Filter for Gas or Gasoline Engines

By reason of its peculiar construction, the American Oil Filter is adapted to the use of hot water from a gas engine, for the purpose of heating the waste oil and facilitating its rapid filtration. Pipe connections can be made so that a continuous flow of hot water from gas or gasoline engine cylinders can be had through the hot water chamber. This excellent feature must commend itself wherever steam engines have been supplanted by gas or gasoline engines.

We desire to call the attention of our friends to the enclosed letter received from the Otto Gas Engine Works, Philadelphia:

The Otto Gas Engine Works,

33rd and Walnut Sts.

Philadelphia.

The Burt Mfg. Company,

Akron, Ohio.

Gentlemen—Your quotation of the 13th inst. for filter received, and you may enter our order for a No. 3 size and ship same at your earliest convenience.

It may interest you to know we already have two of your smaller filters in use, which have given such good results that we can make use of a larger one.

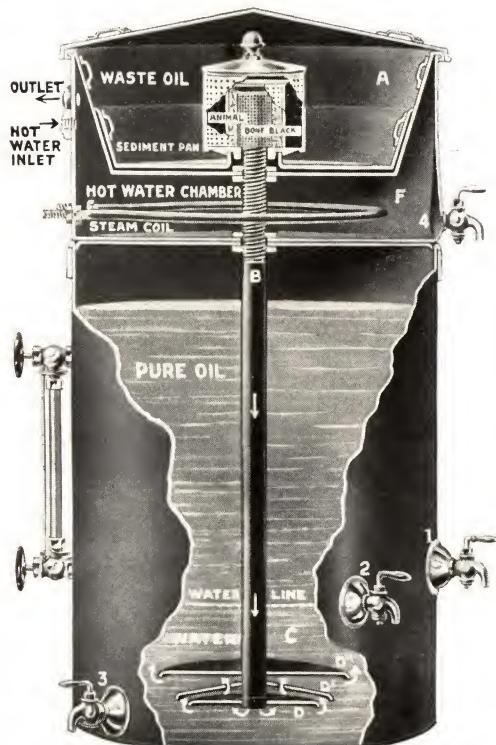
We also take the opportunity to express our satisfaction with those filters. For some years we allowed oil once used to go to waste, as we could not find a filter that would do the work in a satisfactory manner until we tried your make. We are now saving about twenty gallons of high priced lubricating oil per day in our test shop alone.

We cannot speak too highly in favor of your apparatus.

Yours truly,

The Otto Gas Engine Works,

E. F. Burns, Vice-Pres.



## Price List the American Oil Filter

Strictly net, F. O. B. Akron, Ohio

No.	Filtering Capacity per Day of 24 Hours (Gallons)	Price	Holding Capacity Dirty Oil (Gallons)	Diameter (Inches)	Height (Inches)	Capacity Pure Oil Chamber (Gallons)	Net Weight (Pounds)	Gross Weight (Pounds)	Diam. of Crate (Inches)	Height of Crate (Inches)
1	20 to 30	\$30.00	7	18	30	15	46	104	24	32
2	5 to 10	20.00	3	12	26	6	28	60	19	28
3	40 to 50	60.00	19	24	36	30	82	190	33	40
4	60 to 70	75.00	36	30	54	72	282	392	54	57
5	70 to 90	90.00	44	33	56	111	203	430	54	59
6	100 to 120	110.00	50	35	60	150	230	530	66	61
7	120 to 150	130.00	57	35	74	175	264	515	66	76
8	150 to 200	165.00	65	40	76	227	350	700	72	76

The capacity of a filter depends upon the heaviness of the oil to be filtered. The above figures are the minimum and maximum capacities for the heaviest and thinnest oils.

minimum and maximum capacities for the heaviest and thinnest oils.

If desired we can furnish the American Oil Filter with connections for use with oiling system at prices quoted on page 21.

No additional charge for the American Oil Filter for use with Gas or Gasoline Engines.

In ordering filter for this purpose always specify: "For use with gas engine."

When desired we can furnish this filter to reclaim dirty gasoline without extra cost.



Filter can be used with or without water.

# ***Oil Reservoirs for Oiling Systems***

**W**E desire to call the attention of those who contemplate installing an oiling system to our oil reservoirs, which we have furnished for use with our oil filters to some of the largest and most prominent power plants in the United States.

These reservoirs are made of galvanized iron (same quality as used in our oil filters), fitted with inlet and outlet pipes, overflow pipe, cover, and oil gauge. Each tank is handsomely decorated in gold to correspond with our filters.

We can furnish special reservoirs of any size or shape, and made of any gauge iron desired.

Prices and blue prints on Compartment Oil Tanks upon application.

## ***Oil Reservoirs***



Gallons	Inlet	Outlet	Over-flow
25	1/2	1/2	3/4
50	1/2	1/2	3/4
70	1/2	1/2	3/4
100	3/4	3/4	1
140	3/4	3/4	1
180	3/4	3/4	1
250	1	1	1 1/4
300	1	1	1 1/4
350	1	1	1 1/4

## ***Price List***

Strictly net, F. O. B. Akron, Ohio

Capacity (Gallons)	Height	Diameter	Price
25	23	18	\$11.00
50	35	20 1/2	16.00
70	36	24	20.00
100	44	27 1/2	22.50
140	48	30	25.00
180	48	33 1/2	30.00
250	61	35	35.00
300	73	35	40.00
350	85	35	45.00

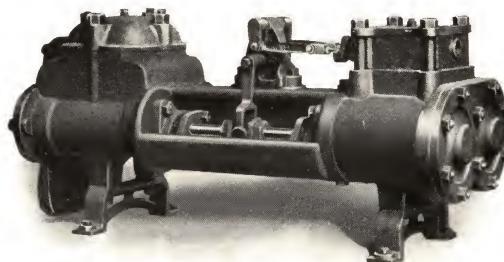
At prices above quoted we will furnish any size inlet and outlet pipes.

If desired steam coil pipes can be furnished at slight extra expense.

# *Oil Pump for Oiling System*



HIS duplex Oil Pump is especially designed for use in connection with oiling systems. The working parts are all easy of access. They are all made to gauge, which is essential to supplying of duplicate parts. The rods are put in on the separate principle, and are fastened at the center by a special device which permits of one rod being easily removed without disturbing the other.



This pump is economical in the consumption of steam. It can be started at any point of the stroke, and consequently there is no danger of its being on the dead center. The valve arrangement is especially adapted for a continuous service, as is necessary in an oiling system. With each pump is included a lubricator, all necessary air and drain cocks, wrenches, etc. Every pump is given a severe individual test before leaving the factory, and is fully guaranteed.

## ***Price List Duplex Oil Pump***

Strictly net, F. O. B. Akron, Ohio

Size No.	SIZE	Proper Strokes per Minute of One Piston, Varying with the Kind of Work and Pressure	Gallons Delivered per Minute by Both Pistons at Stated Number of Strokes	Steam	Exhaust	Suction	Discharge	Price
2	2 $\frac{1}{4}$ x 1 $\frac{1}{4}$ x 2	100 to 250	2 $\frac{1}{4}$ to 6	3 $\frac{1}{8}$	1 $\frac{1}{2}$	3 $\frac{1}{4}$	1 $\frac{1}{2}$	\$62.00
3	3 x 2 x 3	100 to 250	8 to 20	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	1	82.00
4	3 $\frac{1}{2}$ x 2 $\frac{1}{4}$ x 4	100 to 200	14 to 28	1 $\frac{1}{2}$	3 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	108.00
5	4 $\frac{1}{2}$ x 2 $\frac{3}{4}$ x 4	100 to 200	20 to 40	3 $\frac{1}{4}$	1	2	1 $\frac{1}{2}$	126.00
6	4 $\frac{1}{2}$ x 3 x 4	100 to 200	25 to 50	3 $\frac{1}{4}$	1	2	1 $\frac{1}{2}$	132.00

## Factory Ventilation

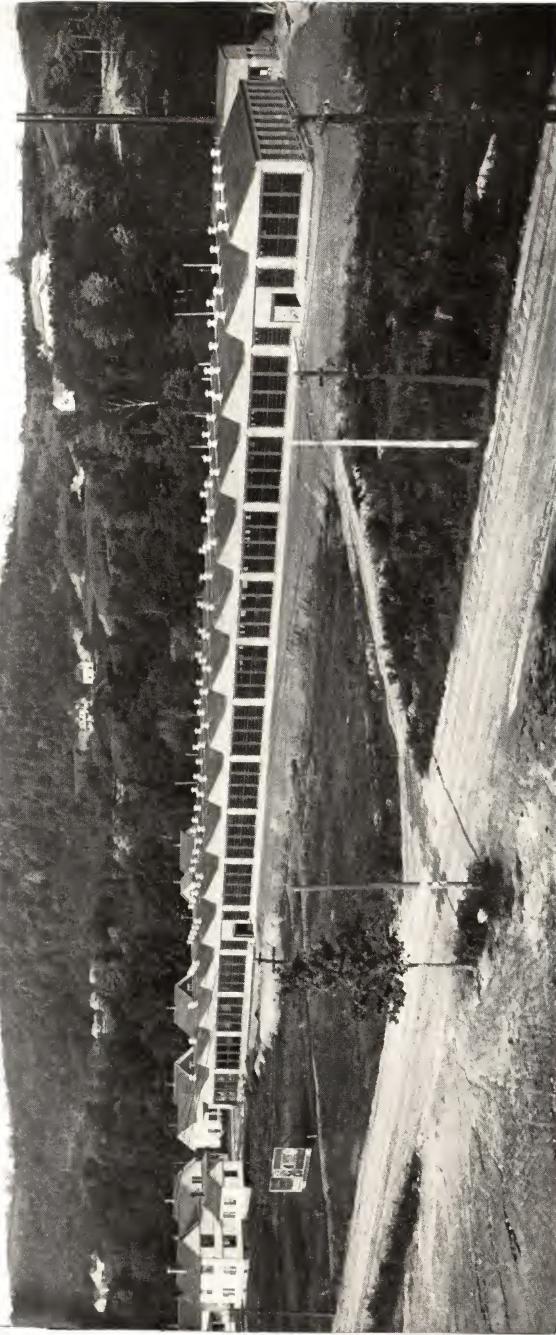


THE ventilation of workshops, public buildings and other large structures, combined with their adequate lighting by daylight, has been given much study by architects and consulting engineers during the past few years. It is now universally recognized by those who have devoted special attention to the subject, not only that an abundant supply of fresh air is essential to health, but also that without sufficient ventilation and ample daylight in buildings where large numbers of men are employed, it is impossible to realize the best results from their work. It is therefore of the utmost importance, both for sanitary and financial reasons, that all such buildings should be given the best possible equipment for ventilation and for lighting by daylight.

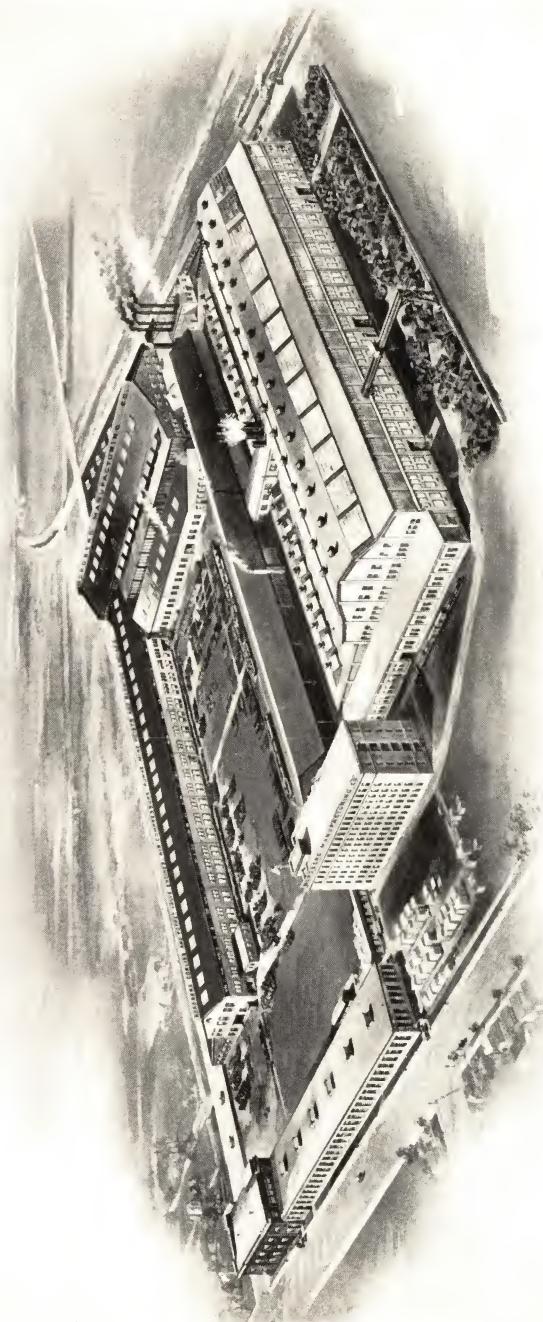
There are still some manufacturers, however, who have given the question of shop and factory ventilation as little thought as was commonly given to sanitary conveniences in the manufacturing establishments of twenty years ago. Although water was as cheap then as it is today, yet suitable means of using it for sanitary purposes were not usually provided. But it is now established beyond question that the installation of proper conveniences for workmen always results in an increased output at considerably diminished cost.



The Sandusky Portland Cement Co., York, Pa., using 10 36-inch Metal-Top "Burt" Ventilators. Also 5 20-inch used at their plants at Dixon, Ill., and Bay Bridge, Ohio. We have also recently equipped 19 other large cement plants.



The Jones & Lamson Machine Co., Springfield, Vt., using 176 20-inch Metal-Top "Burt" Ventilators. We have also recently equipped 138 other machine shops, among the number being: The Nicholson File Co., Paterson, N. J.; 11 16-inch, 4th order; John A. Roehling's Sons Co., Trenton, N. J.; 13 24-inch, 5th order; Scovill Mfg. Co., Waterbury, Conn.; 13 36-inch, 3rd order; McClintic-Marshall Construction Co., Pittsburgh, Pa.; 12 36-inch.



Nordberg Mfg. Co., Milwaukee, Wis., Foundry Building, 270x400 feet. Equipped with 52-30-, 48- and 72-inch "Burr" Metal-Top Ventilators, with Sliding-Sleeve Dampers

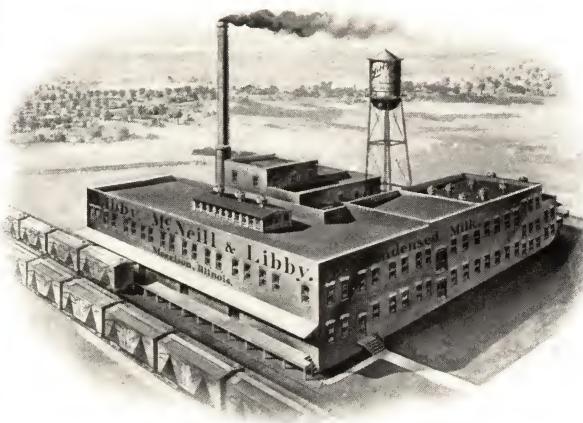


Crown Cotton Mills, Dalton, Ga., using 23 30-inch Glass-Top "Burr" Ventilators. Lowell Machine Shops, Atlanta, Ga., Mill Architects. Other prominent Cotton Mills using the "Burr" Ventilators are: Rhodes Mfg. Co., Lincoln, N. C., 15 24-inch; Waxahachie Cotton Mills, Waxahachie, Tex., 10 30-inch; Summerville Cotton Mills, Summerville, Ga., 16 30-inch; Royal Cotton Mills, Wake Forest, N. C., 10 24-inch; Manville Mfg. Co., Providence, R. I., 7 24-inch; Edwards Mfg. Co., Augusta, Ga., 54 30-inch, 6th order; Westerly Narrow Fabric Co., Westerly, R. I., 29 14-inch; Botany Worsted Mills, Passaic, N. J., 12 18-inch and 9 14-inch, 2nd order.

Fresh air is even cheaper than water, and equally necessary. It may, in fact, be obtained in practically unlimited quantity almost without cost. When erecting new buildings, but slight additional expense

need be incurred in order to provide for ample ventilation, and such expenditure as is called for is merely for the means of producing circulation. In the majority of cases the use of fans or blowers is not involved, as sufficient movement of air can be obtained in one-story buildings by simply providing a direct vent for the escape of the heated air lying next to the ceiling or roof. Notwithstanding the simplicity and inexpensiveness of such an arrangement, many new shops are to be found which are sadly lacking in provision for an adequate supply of fresh air.

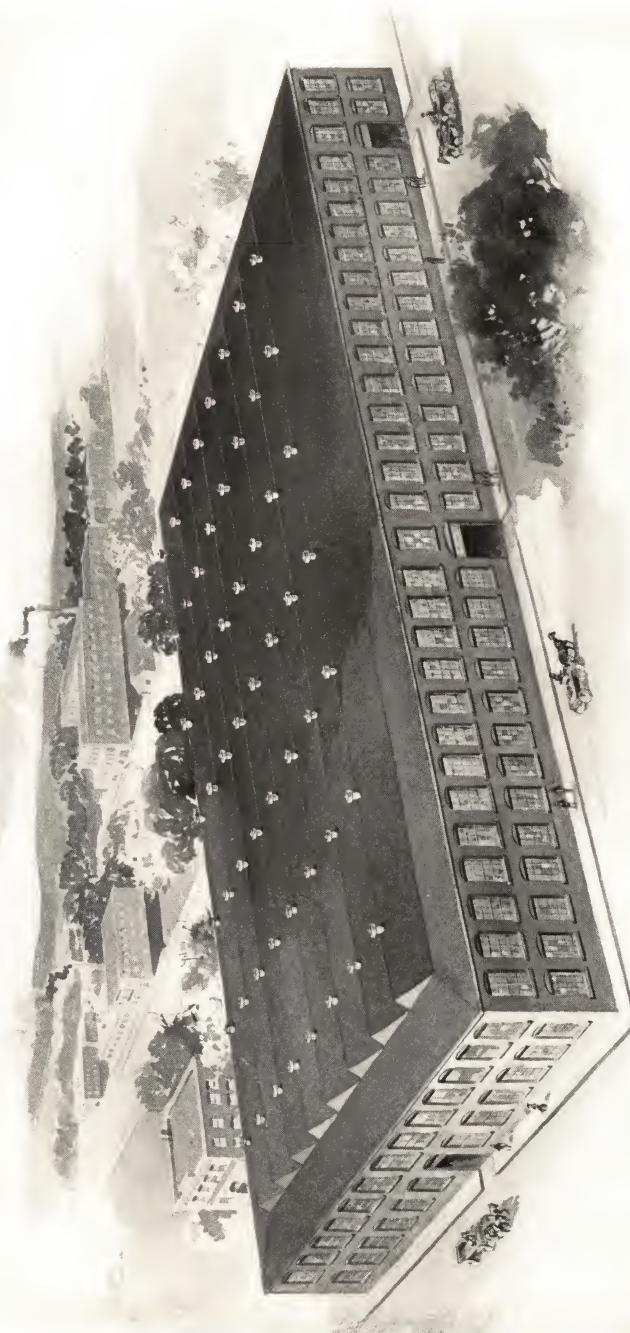
Two hundred cubic feet of fresh air an hour for each person is held by eminent scientific authorities to be about the minimum quantity required to be introduced in order to prevent the ill effects invariably caused by the breathing of vitiated air. When the atmosphere of a workroom is polluted by smoke or gases, from 400 to 600 cubic feet an hour for each person should be supplied. An additional 40 cubic feet per hour is required for each gas jet or other open flame. In a room containing twenty workmen, for example, each provided with a gas jet, a minimum supply of 4,800 cubic feet of fresh air an hour is essential. In machine shops where much oil is used and where more or less dust is constantly rising, not less than twice this quantity is desirable.



Libby, McNeill & Libby, Chicago, using 11 24-inch Metal-Top "Burt" Ventilators on plant at Morrison, Ill. Have recently sent in their eighth order



The Ritter Dental Mfg. Co., Rochester, N. Y., using 66 16-inch "Burt" Ventilators  
Foote & Headley, Architects, Rochester, N. Y.



Warwick Mills, Centerville, R. I., using 46 30-inch "Burr" Ventilators. F. P. Sheldon and Co., Providence, R. I., Mill Architects. Among other prominent concerns using the "Burr" Ventilator for use on saw-tooth roofs are: Yale & Towne Mfg. Co., Stamford, Conn., 40 24-inch, 2nd order; Potomack Mills, New Bedford, Mass., 60 30-inch; Indiana Union Traction Co., Anderson, Ind., 29 18-inch and 7 24-inch; Stecher Lithographic Co., Rochester, N. Y., 41 48-inch, 3rd order; Boonton Rubber Co., Boonton, N. J., 14 18-inch and 2 24-inch, 2nd order; Continental Motor Co., Muskegon, Mich., 26 20-inch; Charlton Mills, Fall River, Mass., 60 30-inch.



In order to maintain a proper temperature both the inlets and outlets for air should be adjustable and under perfect control, so that the maximum circulation can be obtained without lowering the temperature below what is desired. Yet there are many shops which are equipped with excellent facilities for admitting and heating an abundant supply of fresh air, but in which scarcely any provision has been made for permitting the escape of an equal volume of foul air. Drowsiness, produced by breathing impure air, is frequently the result, which has a marked effect on the activity of the workmen and depreciates both the quantity and quality of their output.

Lack of ample ventilation is not due to the cost of suitable appliances being prohibitive, but is generally chargeable to the fact that managers and superintendents fail to realize the difference between the productiveness of workmen employed in a well-ventilated and comfortably warmed shop, and in a cold shop filled with foul air. If the most costly ventilating systems prove a paying investment in very large shops, of which there is no doubt, a less costly, but equally efficient, means will unquestionably pay in small shops, because men are men, and their individual needs are similar, whether the shop be large or small.

Systems for heating large buildings have heretofore received more attention and been more rapidly developed than have means for producing and controlling ventilation. The installation of fans for forcing air into work-rooms and the arranging of a system of conductors to distribute the air supply, is not a very difficult task, from an engineering standpoint. That, how-



American Clay-Working Machinery Co., Bucyrus, Ohio, using 6 48-inch Metal-Top "Burt" Ventilator on machine shop 100x350

ever, constitutes but half of a complete ventilating system. The greatest difficulty encountered is to devise the means of circulating a large volume of air without producing objectionable drafts. Exhaust fans cannot be operated at an efficient speed without causing local air currents which are likely to be detrimental to health. The chief problem of ventilation, therefore, lies in obtaining the required volume of fresh air without causing dangerous drafts. This implies that the entire volume of air in a shop must be kept in motion by the admission of pure air, but at a velocity sufficiently low to avoid a perceptible circulation.

One reason why ventilating systems are not more generally adopted is that most of them cost too much for installation and also involve perpetually more or less operating expense. But such prohibitively costly investments are, generally speaking, wholly unnecessary. The natural course of the hot air in a building being toward the ceiling, good ventilation can be obtained merely by providing a suitable outlet for the foul air, in the ceiling or roof, so arranged that the outflow can be readily controlled. By admitting fresh air at various points in or near the floor, and permitting the escape of foul air through the roof, a large volume of fresh air will be kept in motion in the building, yet at a velocity so low that there will be no perceptible draft.



United States Indian School, Carlisle, Pa., using 5 30-inch Glass-Top "Burt" Ventilators on Gymnasium Building. The U. S. Government has recently sent in its 53rd order

## The Burt Ventilator

**B**Y means of Burt Ventilators impure air, hot air, smoke, steam or gas is taken out of any building automatically and without any expense other than the first cost of the ventilators. Ideal ventilation consists in supplying fresh air to the interior of a building without lowering the temperature too far for comfort. Many methods have been employed in the effort to accomplish this end, but it is a well-established fact that the stationary ventilator of the "Burt" type is the most practicable and least expensive device for the purpose.

The Burt Ventilator is so constructed that when most needed—which is during perfectly calm weather—the ventilator will be effective in drawing the impure air from the interior of the building. Any movement of the outer air across the top of the "Burt" causes an upward flow of air in the air tube, and the air that is next to the ceiling, the hottest air in the building, is drawn out. The "Burt" prevents any back current of air and never becomes clogged with snow, ice or other substance, but always remains free and open. It is stationary and immovable, and therefore will not get out of order or require any attention, and it is perfectly noiseless. The "Burt" is very simple in construction, highly ornamental, and moderate in cost.

The question of light is one that every architect or owner of a building will agree is of vital importance. A building which has poor light is invariably a poor investment. In cities, buildings are, in most cases, built close together, so that light cannot be secured from the sides and can be had only by means of either open courts or skylights.

One of the most important characteristics of the Burt Glass-Top Ventilator is that it constitutes both a skylight and a ventilator. In most cases this makes unnecessary any other form of skylight. Owing to the condition of the weather, it is sometimes advisable to close a ventilator, in



Outside View Glass-Top Ventilator

which case the "Burt" can be entirely closed without in the slightest degree obstructing the passage of daylight through it.

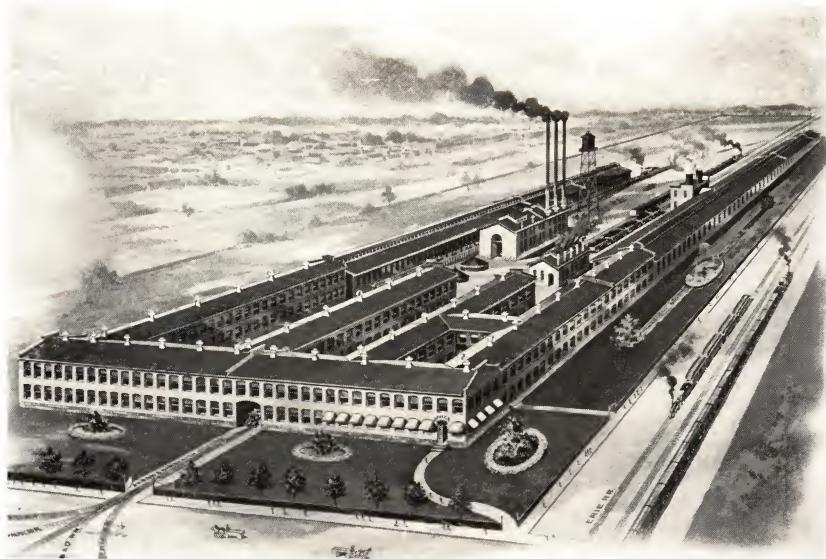
In foundries and iron mills the results have been more than satisfactory. The Pittsburgh Valve & Fittings Co., Barberton, Ohio, who have forty-one glass-top "Burts" in use (see illustration, page 69), say of them in a letter:

We have your communication of March 13th, with reference to the forty-one BURT Glass Top Ventilators which we have been using on our factory for the last six years.

We wish to advise you that these ventilators continue to give us the best of satisfaction. We have had no trouble with them in any way. We are satisfied that if we should be compelled to put additional ventilators on any of our buildings we certainly would put on the Burt Ventilators similar to the ones we now make use of.

In every other make of ventilator in which a glass top is used, the common flat damper is employed, and when that damper is closed, the light is wholly shut off. Thus the value of the skylight feature is lost at the precise time when a skylight is most needed, because in stormy weather the light of the sun is always more or less obscured.

The "Burt" is the only ventilator on the market having this very valuable feature, which is fully protected by our patents. Infringers will be prosecuted.



**View showing 41 36-inch Glass-Top "Burt" Ventilators at the works of the Pittsburgh Valve & Fittings Co., Barberton, Ohio**

The Burt Mfg. Co., Akron, Ohio.

Red Wing, Minn.

Gentlemen:—We purchased from you during the past summer six 18-inch glass-top ventilators and they are giving satisfaction. They were bought to ventilate the attics of our cottages here at the institution. They performed their services well during the hot weather. We also have two smaller ventilators bought of you later, ventilating our refrigerating room and kitchen. We find that these work very well there and are entirely satisfactory in every way. Yours very truly.

MINNESOTA STATE TRAINING SCHOOL,  
F. A. Whittier, Superintendent.

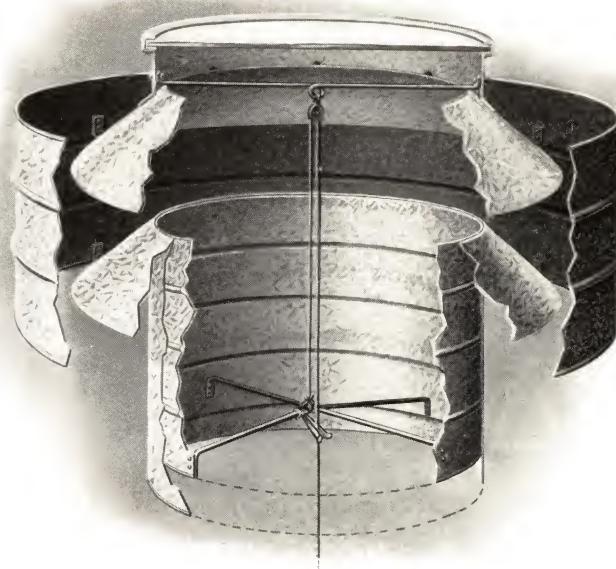
The Burt Mfg. Co., Akron, Ohio.

Milwaukee, Wis.

Gentlemen:—Our new foundry (270 x 400), for which you have furnished us fifty-two (52) 72-inch, 48-inch and 30-inch ventilators, has been in operation since May 15th, and you may be interested to know that we feel that we have made no mistake in the selection of the type and make of ventilators used. Very truly yours,

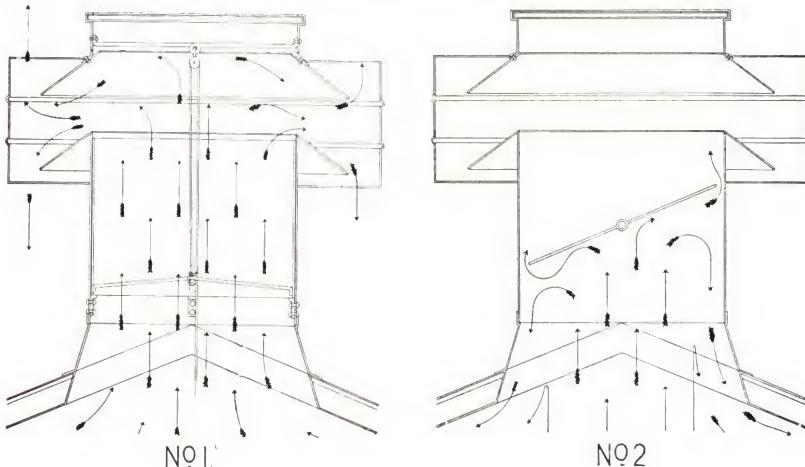
NORDBERG MANUFACTURING CO.,  
By C. Scholtka, Superintendent.

The damper of the Burt Ventilator is so constructed that the air shaft remains always free and unobstructed, whether the ventilator is closed or not. In other ventilators, when the flat damper commonly used is partly closed, the air current strikes the damper (see Figure No. 2) and is deflected back into the room; while in the "Burt" (the air shaft being always wide open—see



Sectional View Glass-Top Ventilator

Figure No. 1) the air current flows unobstructed to the top of the air shaft, where it escapes from the ventilator. Thus the "pulling power" of the "Burt" is far greater than that of any other stationary ventilator. As it is unaffected by air currents, the "Burt" damper never moves from any position in which it may be set, whereas the flat damper used in other ventilators is in constant movement and therefore requires frequent attention.





## Ventilators for Private Residences

HE use of ventilators on private residences is a subject which has not yet received the attention it deserves, and it is apparent that comparatively few persons appreciate its importance as affecting the general healthfulness and comfort of dwellings, especially during the warmer months.

The upper story or attic of dwellings is generally dark and dusty, and is insufferably hot in summer. For sleeping purposes it is out of the question. Consequently, this space is seldom used except as a storage room, and in most cases it is not used at all.

When a residence is equipped with one or more Burt Glass-Top Ventilators, however, the attic story becomes a well-ventilated and well-lighted room, fit for any purpose desired—which is equivalent to adding another story to the house. It is also true that the benefit to be derived from these ventilators is not limited to the attic, as it will be felt to some extent throughout the house, and to a marked degree in the story next below the attic floor.

The Burt Ventilator is storm-proof, and can be adjusted to any degree of ventilation desired. When the glass-top style is used, the ventilator can be entirely closed without obstructing the light. This feature is peculiar to the Burt Ventilator.

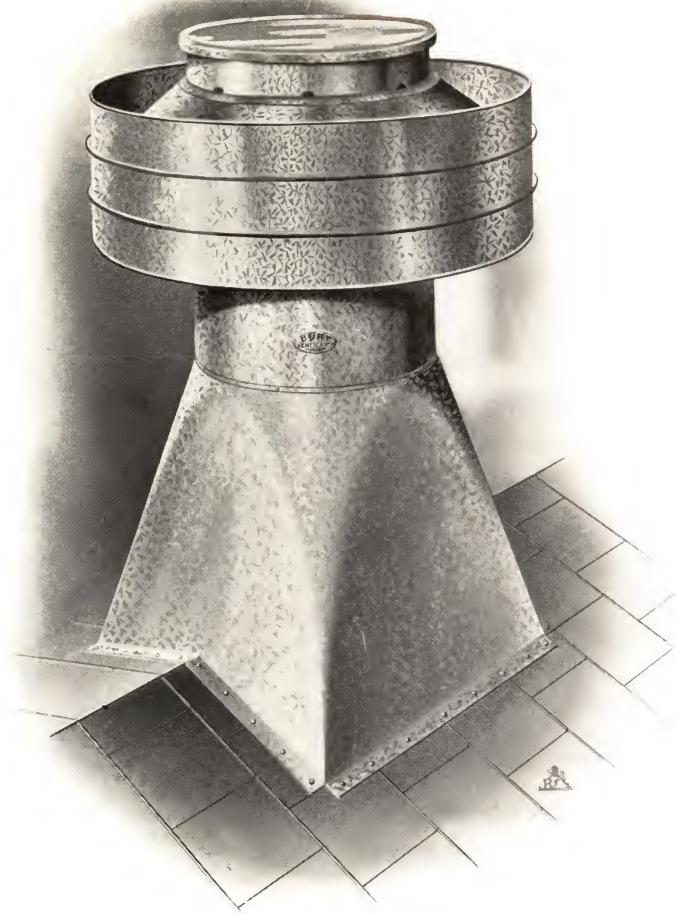
The following quotation from a letter written by one of our representatives at Cincinnati refers to the residence illustrated on the following page:

"In reply to yours of recent date, will say that these ventilators (three 20-inch and one 24-inch glass-tops) are to go on C. P. Taft's residence, this city. He is the owner of the *Times-Star* and brother of ex-President Wm. H. Taft. Elzner and Anderson are the Architects, and they stated positively that nothing but the Burt Ventilator would be allowed to go on, so you see that speaks well for you."

Further information in regard to the use of Burt Ventilators on residences will be gladly furnished on application.



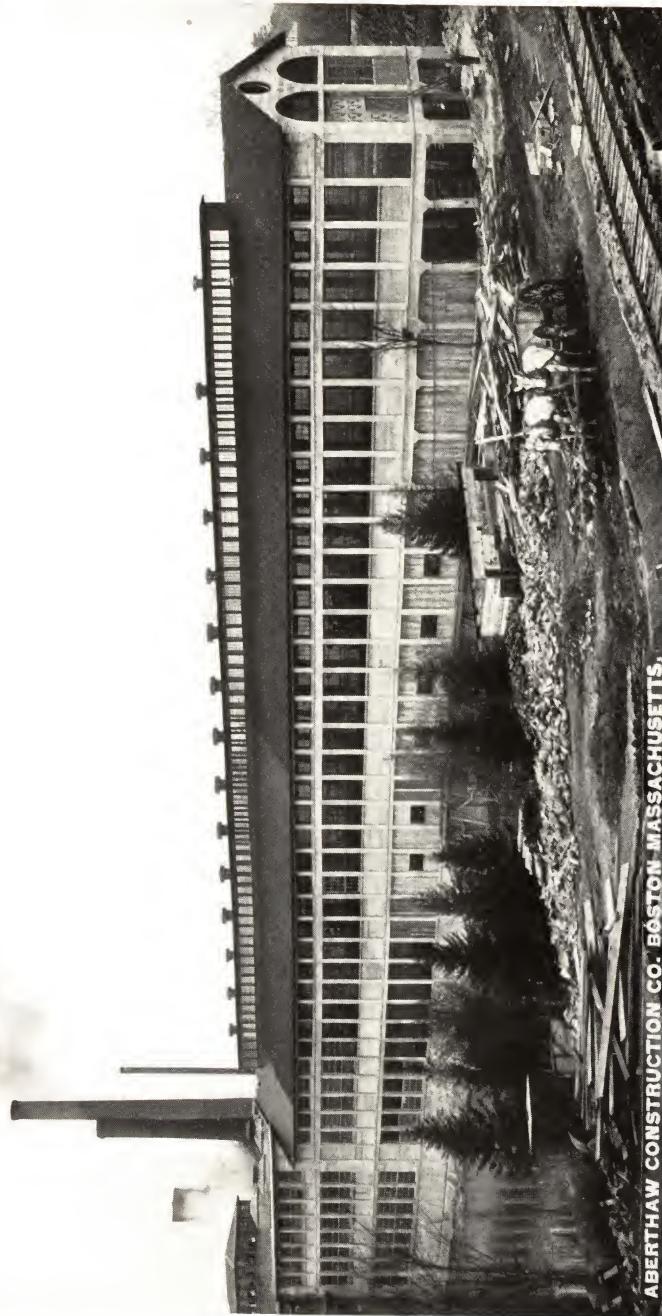
Residence of Chas. P. Taft, Cincinnati, O., (owner of the TIMES-STAR and brother of Wm. H. Taft, ex-President of the United States), equipped with 3 20-inch and 1 24-inch Burt Glass-Top Ventilators fitted with adjustable sliding-sleeve damper (patented)



**View of Glass-Top Ventilator with square base as applied to ridge of roof**

The above shows the construction of the "Burt" when used both as a skylight and a ventilator. The top is heavy wired glass, which is set in a groove and made absolutely water-tight by means of waterproof cement. We guarantee it against leaks. Below the glass top is a trough (patented) into which runs any condensed water which may gather on the glass, whence the water passes through small holes to the outside of the ventilator.

A trough is also placed in the lower part of the bases that we manufacture so as to collect all condensation which might possibly form on the air shaft.



ABERTHAW CONSTRUCTION CO. BOSTON MASSACHUSETTS.

Androscoggin Pulp Co., S. Windham, Me., using 17 30-inch "Burt" Metal-Top Ventilators. We have recently supplied 39 paper mills with our Burt Ventilators, among the number being: Champion Paper Co., Cartage, N. Y.; 8 30-inch, 2nd order; Marion Paper Co., Marion, Ind., 14 36-inch; Howard Paper Co., Urbana, O.; 6 60-inch; Chicoutimip Pulp Co., Chicoutimip, Quebec, 4 36-inch; J. P. Lewis Co., Beaver Falls, N. Y., 7 30-inch and 3 18-inch, 2nd order; Mutual Box Board Co., Utica, N. Y., 7 48-inch, 2nd order.



View showing 5 30-inch "Burt" Glass-Top Ventilators as applied to skylights on Illinois Athletic Club Building

be placed in position without taking down the ventilator.

The patented damper used on all "Burt" ventilators consists of a sliding sleeve. It is operated from below by means of a cord and pulley. Each "Burt" ventilator is fitted with a special attachment so that whenever it is necessary to adjust the damper it can be set in any position and is held permanently, and thus it is not necessary to fasten the cord to a nail, hook, post, or counterbalance the same. Where the common flat damper is used, it has always been necessary to fasten the cord to some convenient place, and this quite often interferes with the operation of machinery, but where the "Burt" ventilator is used, this is done away with entirely.

Great care is exercised in making the air shaft round, the sliding sleeve also being perfectly round, slides easily up and down without friction.

Where the glass-top feature is ordered, we furnish an especially designed band (patented) to fasten the glass so that on large sizes the glass can be shipped separately and easily placed in position by any first-class workman. If the glass is broken in any way, a new glass can



Front View of Illinois Athletic Club Building, Chicago, Ill., equipped with 10 30-inch Glass-Tops



**Power Plant of Aurora, Elgin & Chicago Railway Co., Batavia, Ill.,  
using 14 48-inch Glass-Top "Burt" Ventilators**

When the sleeve is at its highest point it is in contact with the top, and completely closes the ventilator.

### ***Ventilators for Power Plants***

Every unventilated boiler house is dark and dingy, and its atmosphere is usually saturated with gases and fine particles of coal dust. But when equipped with the Burt Glass-Top Ventilators the result is thorough ventilation and much improved light. During warm weather, when the temperature of boiler rooms is likely to be excessively high, it can be greatly modified by means of the Burt Ventilator. We have equipped many boiler houses during the past few years, and ask you to note the following letter from the engineering department of the Aurora, Elgin & Chicago Railway Co.

We have your letter of the 13th inst. asking in regard to our experience with your ventilators. We have had 14 48-inch BURT Glass-Top Ventilators in use at our Batavia Power House for the past six years, and will state that they are entirely satisfactory, and that we are well pleased with the installation. [Signed] E. F. GOULD.

Recently ordered seven more 48-inch Glass Tops.

# FLORIDA EAST COAST RAILWAY

L. C. HAINES,  
PURCHASING AGENT

OFFICE  
26 BROADWAY

ORDER No. 1509

NEW YORK, Nov. 20, '06

REQ'N No. A-773

Burt Mfg. Co.,  
Akron, O.

*Please furnish the following material, and forward invoice in TRIPPLICATE and signed Shipping Receipt or Bill of Lading DIRECT TO THIS OFFICE.*

QUANTITY	MATERIAL	PRICE
48	Burt Metal-top ventilators, 24-inch.	
	<p>On Feb. 26, 1906, we shipped the Florida East Coast Ry. Co., Miami, Fla., a 30-inch "Burt" Ventilator on trial, subject to approval. Their mechanical engineers advised us that they had used about all the standard makes of ventilators, but that none of them were entirely storm-proof, owing to the fact that they have such heavy rainstorms in that section of the country.</p> <p>After eight months of the severest test we received their order for 48 24-inch "Burt" ventilators, which tells its own story.</p> <p>The "Burt" ventilator is absolutely guaranteed to be storm-proof, and with the decided advantage of the sliding-sleeve damper we know that it will be found far superior to any make on the market to-day.</p>	

Ship Via: Clyde Line, Pier No. 36, N. R.

MARK and CONSIGN: F. E. C. RY., C/o J. C. MEREDITH, C. E.  
MIAMI, FLA.

EACH PACKAGE to be marked with REQUISITION NUMBER.  
EACH INVOICE to show both ORDER NUMBER and REQUISITION NUMBER.

ADDRESS ALL CORRESPONDENCE TO L. C. HAINES

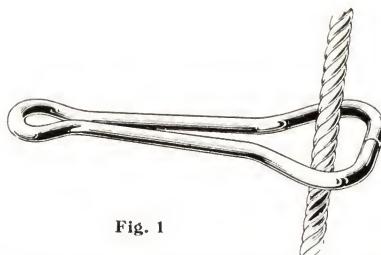


Fig. 1

Figure 1 shows our clip or spring (patented) when the rope is free and the damper is open.

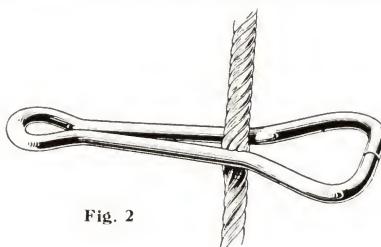


Fig. 2

Figure 2 shows the rope forced into the clip when the damper is closed or adjusted to any position desired.



Fig. 3

Figure 3 shows our notched rim (patented) which is used to hold the glass in position.

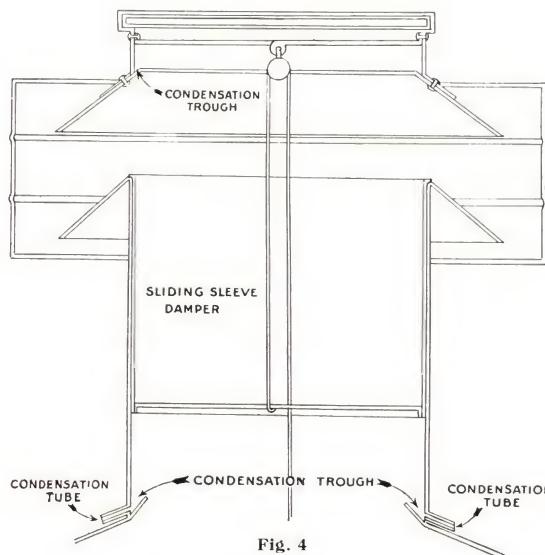


Fig. 4

Figure 4 shows condensation trough (patented) which is placed below the glass to collect all moisture, and through small openings the water is passed to the outside and on to the roof. This feature is only found in the Burt Ventilator and is absolutely essential in connection with glass tops. This cut also shows condensation trough which is placed in all bases which we manufacture (without extra charge). In some cases the air shaft sweats and the water drips down into the building, but with our arrangement this is not possible, as all water passes to the roof through the small condensation pipe. The sliding-sleeve damper is also shown in this cut.

***The "Burt" possesses the Following Exclusive Features  
not Found in any other Ventilator***

- 1st—It has the telescopic or sliding-sleeve damper.
- 2nd—It is a combination ventilator and skylight in which the light is never obscured or shut out.
- 3rd—The air shaft is always entirely unobstructed, and the air current is never deflected downward.
- 4th—The temperature of the building can be easily and exactly regulated by the use of the sliding-sleeve damper.
- 5th—A trough or lip (patented) is placed below the glass to collect all condensation, making it impossible for water to drop down into the building. A trough is also placed in the lower part of the base so as to collect all condensation which might possibly form on the air shaft.
- 6th—The sliding-sleeve damper, having no flat surface, does not collect dust or refuse, to be shaken off into the building, as is the case with all other dampers.
- 7th—The sliding-sleeve damper, after once adjusted, is held permanently in any position by a special attachment, so that it is not necessary to fasten the cord to a nail, hook or post, as in the case where the common flat damper is used. The sliding-sleeve damper is not affected by air currents, and thus requires no attention.
- 8th—An especially designed band (patented) to fasten the glass so that on large sizes the glass can be shipped separately and easily placed in position. If glass is broken in any way, a new one can be placed in position without taking down the ventilator. Ventilator constructed so that no water will stand on glass and guaranteed absolutely storm-proof.



View Showing 389 Copper Burt Metal-Top Ventilators (20th order) as applied to skylights on the Angus Shops of the Canadian Pacific Ry. Co., Montreal. This building is 1,164 ft. long and 100 ft. wide. We have also equipped 23 other roads, including Pennsylvania Co., Northern Pacific, Union Pacific, Southern Pacific, etc.



Outside View Metal-Top Ventilator

The "Burt" Ventilator is no mere experiment, as it has been on the market for about fifteen years; and we can refer to many of the largest manufacturing concerns in the country who have installed these ventilators.

The "Burt" is manufactured in any size required. The regular patterns are built throughout of galvanized iron, of suitable weight for each size, and every ventilator is so strongly braced (steel bands of extra heavy weight) and riveted that it will withstand any strain to which it is liable to be subjected.

To show what satisfaction the "Burt" Ventilator is giving our friends, we quote from a letter received from the Peoples Light Company, Moline, Ill.:

In reply to yours of the 14th in reference to the 18 42-inch Burt combination skylights and ventilators we have on our Power House, and Rock Island and Davenport sub-stations, we are pleased to say that they are giving us entire satisfaction.



Also from  
the Pioneer  
Cotton Mills,  
Guthrie,  
Okla.

In answer to yours of June 13th, we wish to offer an apology for not acknowledging receipt of your catalogue, which contains the picture of our mill. We appreciate this very much. While your catalogue is very nice, one cannot appreciate your ventilators until they have had them in actual use, and when we are again in the market for ventilators, we will certainly buy "The Burt."

Later on sent an additional order for 5 30-inch.

Because of the fact that efficient ventilation is a vital necessity in every laundry, the testimony of the Royal Laundry, of Richmond, Va., given below, as to the superiority of the "Burt" Ventilators they have in use, in comparison with others they had previously installed, is a peculiarly valuable contribution to our long list of commendatory letters from satisfied customers.

The Burt Mfg. Co., Akron, Ohio.

Gentlemen: Replying to your recent favor beg to say that the 9 24-inch "Burt" Ventilators have been received and installed. A few years ago we installed thirty ventilators of another make and greatly regret that we did not know of the "Burt" at that time, as we consider your ventilators vastly superior in point of efficiency, as well as in material and construction.

Richmond, Va.

Royal Laundry,  
M. B. Florsheim,  
Prop.



Union Iron Works, Spokane, Wash., using 8 48-inch and 5 36-inch  
Glass-Top "Burt" Ventilators

The following letter from the Union Works Co., Spokane, Wash.

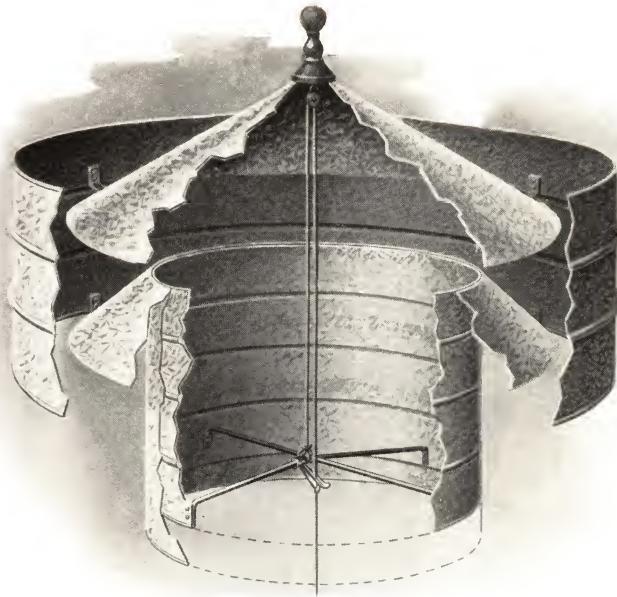


**View of Metal-Top Ventilator with round base as applied to ridge of roof**

"Referring to your favor of the 14th inst., would state that we are mailing you under another cover, a photograph of our new foundry building, showing the eight 48-inch and five 36-inch 'Burt' Glass-Top Ventilators which you furnished. These ventilators are giving perfect satisfaction, and we are very glad to recommend them as being the best constructed and most serviceable ventilators on the market."

The "Burt" is made with a metal top instead of a glass top, when required. With the exception of the top, both styles are precisely alike in construction and operation; but the metal-top style is a ventilator solely, and does not admit light. We furnish the sliding-sleeve damper in all metal-top ventilators, the same as in the glass-top style.

Practical tests have clearly shown that our sliding-sleeve damper is a great improvement over the flat damper. Our damper, being round, does not collect dust, as the flat



Sectional View Burt Metal-Top Ventilator

damper does; and our damper maintains its position wherever it is set; while the flat damper is kept constantly in motion by the currents of air, and hence requires frequent adjustment. Our damper leaves the air shaft open and unobstructed, consequently the "pulling power" is greater than where the flat damper is used, and for this reason a smaller number of "Burt" Ventilators than of any other make is necessary to ventilate any building.

Those who do not desire our glass-top will find our metal-top ventilator a great improvement over every make in which the flat damper is used. The "Burt" Ventilator

is constructed on scientific principles, and in any case in which the location of ventilators is such that dampers are not required, it will be found that the "Burt" is equal to any ventilator made.



View Showing 5 30-inch Glass-Top "Burt" Ventilators as applied to roof of Skating Rink at Akron, O.

# Specify the Burt Glass Tops

For use on your skylights. The Burt will give you light and ventilation at the same time.

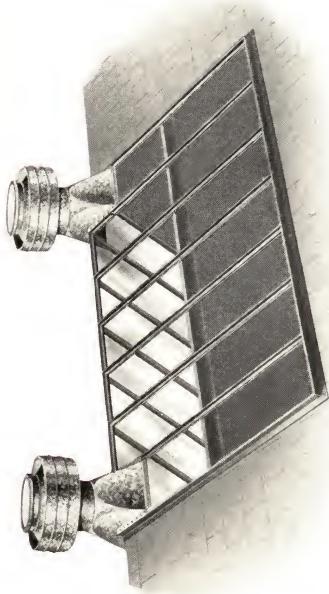


Fig. 1. Burt Ventilators as applied to Comb Skylight

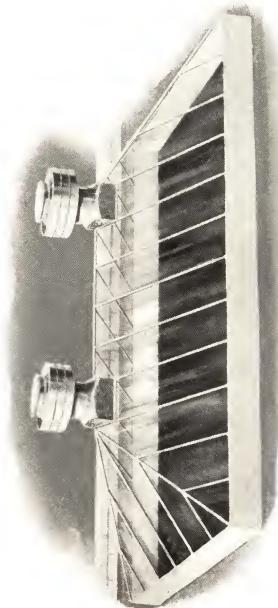


Fig. 2. Burt Ventilators as applied to Hipped Skylight

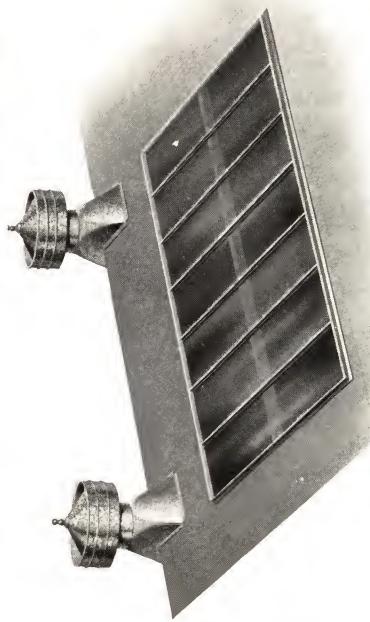


Fig. 3. Burt Ventilators as applied to Roof with Flat Skylight

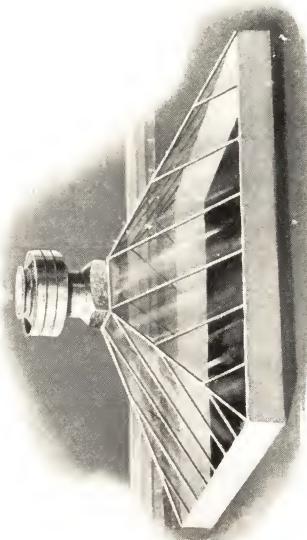


Fig. 4. Burt Ventilator as applied to Hipped Skylight

## *Praise Without Words*

This partial list of repeat orders is the strongest endorsement we can offer as to the superiority of the Burt Ventilator. We claim not only to furnish the highest grade ventilator as to material and workmanship, but one possessing modern improvements not found in any other make, and the many repeat orders from the largest corporations is the best evidence as to the superior merits of the "Burt."

United States Steel Corporation—three hundred eighty-ninth order.  
Standard Oil Co.—one hundred sixty-third order.

United States Government—sixty-second order.

American Beet Sugar Co., Denver, Col., 7324-inch—twenty-third order.  
Chicago Rys. Co., Chicago, Ill., 56 16-inch—fourth order.

Imperial Tobacco Co., Richmond, Va., 75 20-inch—eighth order.

Stecher Lithographic Co., Rochester, N. Y., 41 48-inch—third order.

Yale College, New Haven, Conn., 2 36-inch—second order.

Armstrong Cork Co., Beaver Falls, Pa., 29 24-inch—fourth order.

Canadian Locomotive Works, Montreal, Can., 10 24-inch—fifth order.

Scovill Mfg. Co., Waterbury, Conn., 5 48-inch and 10 36-inch—fifth order.

Consolidated Gas Co., New York City, 2 36-inch and 3 20-inch—second order.

Inland Steel Co., Indiana Harbor, Ind., 7 36-inch—second order.

Armstrong Linoleum Co., Lancaster, Pa., 49 24-inch—third order.

Jno. A. Roebling's Sons Co., Trenton, N. J., 3 12-inch and 15 36-inch—sixth order.

Nicholson File Co., Paterson, N. J., 11 16-inch—fourth order.

Florida East Coast Ry., Miami, Fla., 49 24-inch—second order.

Wm. J. Oliver Mfg. Co., Knoxville, Tenn., 6 48-inch and 8 30-inch—fourth order.

Doe Run Lead Co., Flat River, Mo., 12 36-inch—third order.

Moctezuma Copper Co., Nacozari, Mex., 2 24 inch and 8 48-inch—second order.

The B. F. Goodrich Co., Akron, Ohio, 40 24-inch and 8 36-inch—eleventh order.

Vacuum Oil Co., Rochester, N. Y., 12 36-inch, 6 30-inch and 3 14-inch—sixth order.

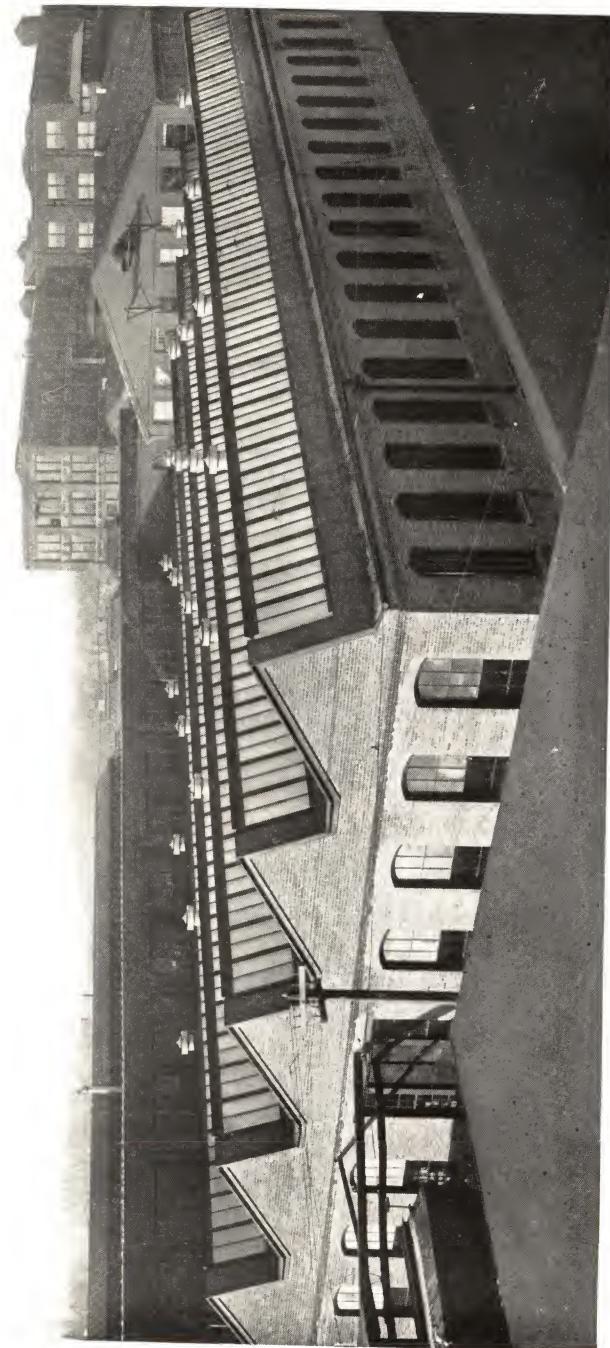
Proctor & Gamble Co., Ivorydale, Ohio, 7 30-inch—second order.

J. G. White & Co., New York City, 30 42-inch—tenth order.

Stone & Webster Engineering Corp., Boston, Mass., 82 48-inch and 69 other sizes—forty-fifth order.

Terre Haute Traction & Light Co., Terre Haute, Ind., 16 48-inch—fourth order.

Edwards Mfg. Co., Augusta, Me., 60 30-inch—seventh order.



The Yale & Towne Mfg. Co., Stamford, Conn., using 20 18-incl. "Burt" Ventilators. Note testimonial on following page

# The Yale & Towne Mfg. Co.

Stamford, Conn., Feb. 18, 1908.

The Burt Mfg. Co.,  
Akron, Ohio.

Gentlemen:

Acknowledging receipt of your letter of Feb. 15, we have to advise that the ventilators placed on the saw-teeth of a recent addition to our buildings have given excellent satisfaction. We are pleased with the principle of design; in fact, at the time of building, we had begun the design of a regulating ventilator for our own use which would combine the advantages of the cowl and of the ventilator without the disadvantage of the sticking of the one and the interfering currents produced by the damper of the other, when our investigation brought the "Burt" ventilator to our attention. We ordered twenty eighteen-inch ventilators.

Very truly yours,

THE YALE & TOWNE MFG. CO.  
By H. J. Lamborn, Supt. Power & Plant.

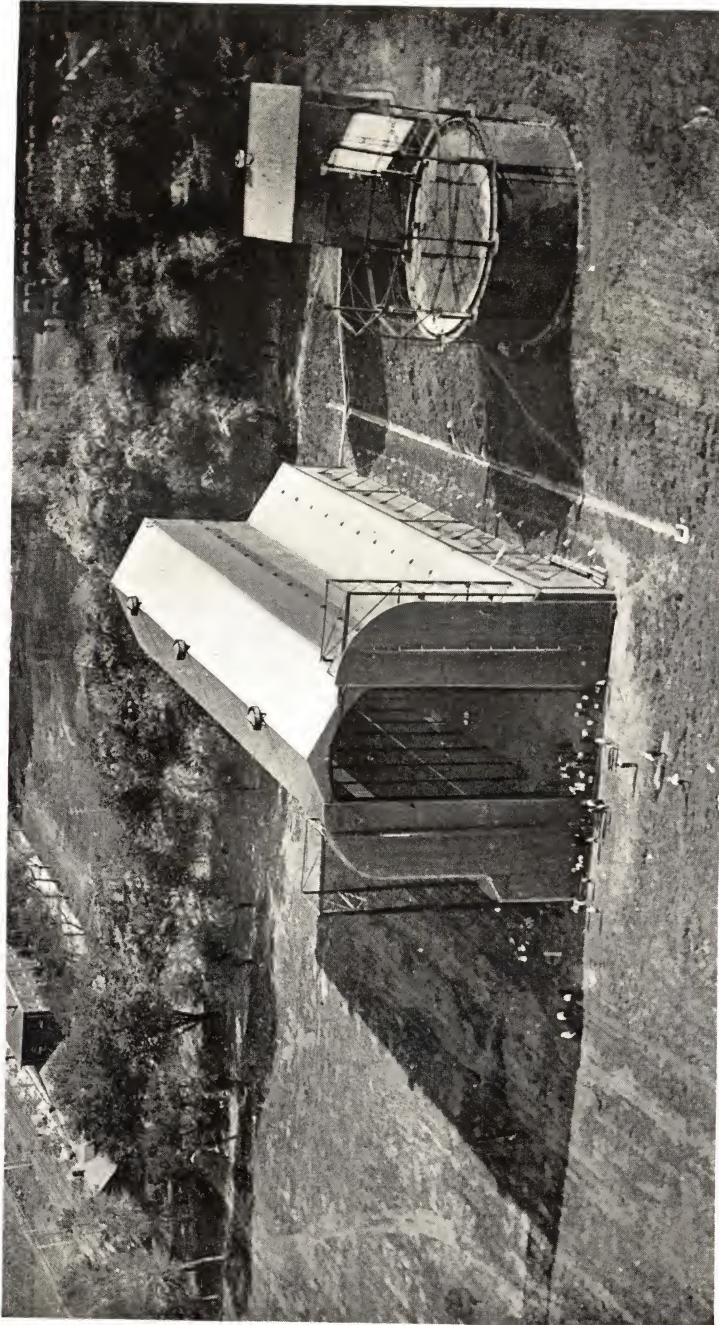
July 15th, 1911, they sent in an additional order for 20 24-inch. Oct. 11th, 1916, ordered 6 36-inch.



Ohio Salt Co., Rittman, O., using 20 30-inch Glass-Top Ventilators on main buildings and 17 48-inch Glass-Tops (4th order), on boiler and engine rooms. We have also recently supplied the Wadsworth Salt Co., Wadsworth, O., with 20 24-inch, 9 18-inch and 7 34-inch Glass-Top Ventilators (4th order), and the Penna. Salt Mfg. Co., Wyandotte, Mich., with 3 24-inch Metal-Tops



Fairmont Hotel, San Francisco, Cal., Equipped with Burt Ventilators. We have recently equipped twenty-nine other Hotels with our Ventilators.



Four 48-inch Burt Ventilators on U. S. Balloon House, Fort Omaha, Neb. Photograph taken from a balloon. Note letter on following page. We have recently entered the sixty-fifth order from the U. S. Government

# *U. S. Government Official Report*

## OFFICE OF OFFICER IN CHARGE OF AERONAUTICS

Fort Omaha, Neb.

The Burt Mfg. Co.,  
Akron, Ohio.

Gentlemen:—

I have the honor to inform you that the ventilators furnished by your firm have been installed on the balloon house at this station with the following results:—

1. Temperature in balloon house 3 feet from concrete floor, 90 degrees.
2. Temperature (with ventilators closed) 4 feet from iron roof, 100 degrees.
3. Temperature (with ventilators open) 4 feet from iron roof, 96.5 degrees.
4. Ventilators when open have a tendency to draw up all dust and smoke from lower part of building, which fact not only makes the atmosphere purer but also has the effect of making it feel cooler than it really is.
5. The ventilators are satisfactory.
6. If there is any error in this report, a correction would favor the ventilators.

Very respectfully,

W. N. HASKELL.

1st Lieut. Signal Corps

In charge of Aeronautics



The above illustration shows one of our regular 48-inch Glass-Top Ventilators easily supporting eleven men with a total weight of 1,762 pounds. This ventilator was not made special, but was one of sixteen ordered by the Stone & Webster Engineering Corporation (45th order) for the Terre Haute Traction & Light Co., Terre Haute, Ind. The "Burt" Ventilator is made of extra heavy iron, strongly braced, and is warranted to be strictly high-grade in every way. Owing to the fact that so many cheap and poorly constructed ventilators are on the market today, their only claim for existence being price, we urge prospective buyers to order a sample ventilator of our manufacture, and make comparison as to workmanship, material and construction.

# The Burt Double-Damper Ventilator

For Weave Sheds



FIG. 1. DOUBLE-DAMPER VENTILATOR—OPEN

The Burt Double-Damper Ventilator (patented) is designed especially for weave sheds, and after a thorough test during the last three years by prominent textile mills in the East, also the leading mill architects, it has been pronounced a success, and is being adopted by two-thirds of the new textile mills now being erected in the Eastern States.

Owing to the very severe requirements on weave sheds in the way of proper ventilation, and the great difficulty which has been experienced in the past by condensation forming on the air shaft of the common ventilator and the cowl, and the water dripping down and ruining fine machinery and cloth, nearly all the weave sheds in the East have taken these ventilators off their buildings and use other means of ventilation, which have not given the best of satisfaction.

By use of the Double-Damper Ventilator the temperature of a room can be easily regulated, owing to the fact that both dampers work together, and in very cold weather when it is necessary to retain all the heat in the building, both dampers can be closed, thus retaining



F. P. Sheldon & Co., Providence, R. I., Mill Architects  
Potomak Mills, New Bedford, Mass., using 60 30-inch Burt Double-Damper Ventilators. Other mills using this type of ventilator for weave sheds  
are: Warwick Mills, Centerville, R. I., 46 36-inch; Grinnell Mfg. Co., New Bedford, Mass., 38 30-inch; Greylock Mills, North  
Adams, Mass., 15 30-inch; Dartmouth Mfg. Co., New Bedford, Mass., 36 30-inch; Danielson Cotton Mill, Daniel-  
son, Conn., 34 30-inch; Loraine Mills, Sayville, R. I., 39 30-inch; Ponemah Mills, Tarzville, Conn., 66 30-inch;  
Marville Mfg. Co., Manville, R. I., 15 30-inch; Charlton Mills, Fall River, Mass., 60 30-inch; Suror Bros., Weehawken, N. J., 33 30-inch; Berk-  
ley Mills, Berkley, R. I., 20 24-inch; Quissett Mills, New Bedford, Mass., 16 24-inch.

FIG. 3.

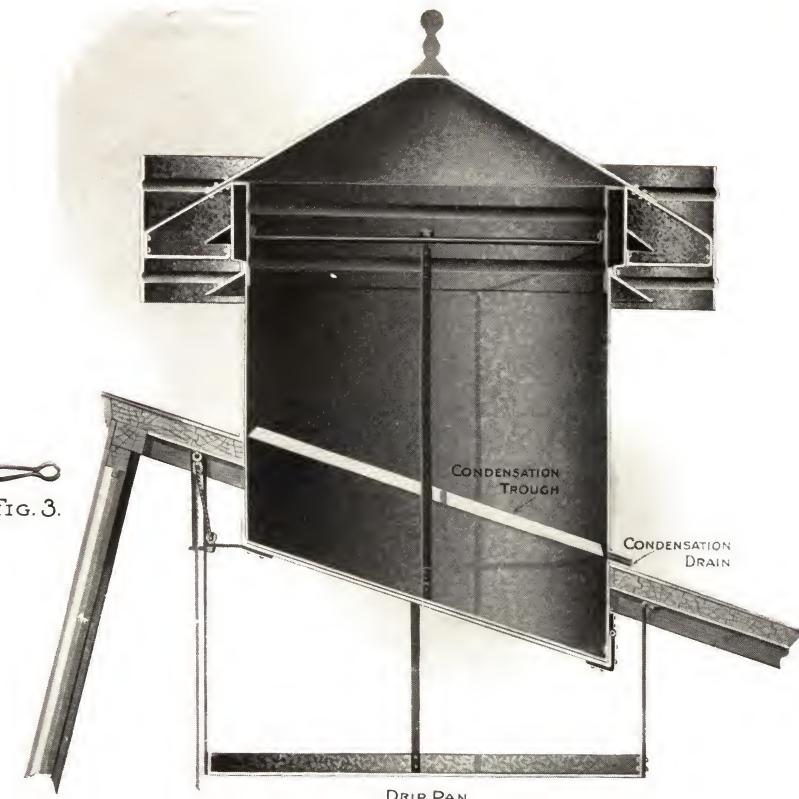


FIG. 2. DOUBLE-DAMPER VENTILATOR—CLOSED

all the warm air, and at the same time no condensation collects on the air shaft, and this does away with the annoyance of dripping water on machinery and cloth, which experience was a common occurrence where the usual ventilator or cowl was used.

When the ventilator is open and the condensation is very severe, the lower damper acts as a drip pan and collects the moisture, and this evaporates, owing to the high temperature of the room. The lower drip pan is placed below the bottom damper more as a safety device, so that, in case the lower damper should overflow, this would collect all the surplus water; and, if desired, pipe connections can be made so as to pass water to sewer off the roof.

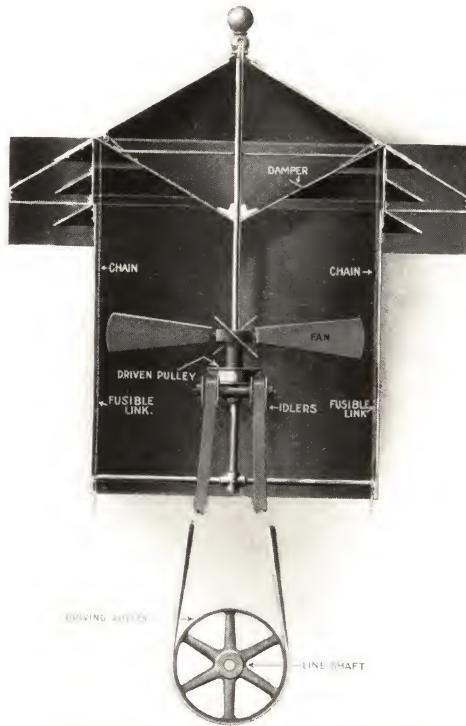
The condensation trough in the air shaft collects a great deal of the moisture and passes this to the outside of the ventilator. Where the dampers are closed the rope is forced into special attachment, fastened to the roof (see cut), and held firmly, and then it is not necessary to tie same to a nail, hook or post, as in the case where the common flat dampers are used.

We can furnish these in all sizes, and upon receipt of information as to the number desired, quotations and blue-print will be submitted.



# B u r t " F a n " V e n t i l a t o r

(PATENTED AND PATENT APPLIED FOR)



Sectional Cut of the Burt "Fan" Ventilator

This ventilator will appeal at once to manufacturing concerns and mechanical engineers who have had difficulty in removing quickly and at a slight expense excessive fumes and odors in blacksmith shops, foundries, rubber factories, laundries and other buildings.

This type of ventilator is only for the most difficult conditions and will be found much more economical than

the average blower system, and at the same time just as effective. In the average conditions our regular ventilator will, in most cases, thoroughly ventilate a building in a reasonable length of time, but where quick results are absolutely essential we would recommend our Fan Ventilator.

This ventilator is so constructed that the fan operates at a speed of 350 to 400 revolutions per minute, and our tests with the anemometer show that it will remove ten times more air in a given length of time than the average stationary ventilator.

In case of fire the fusible links will break, thus causing damper to drop and shut off the draft.

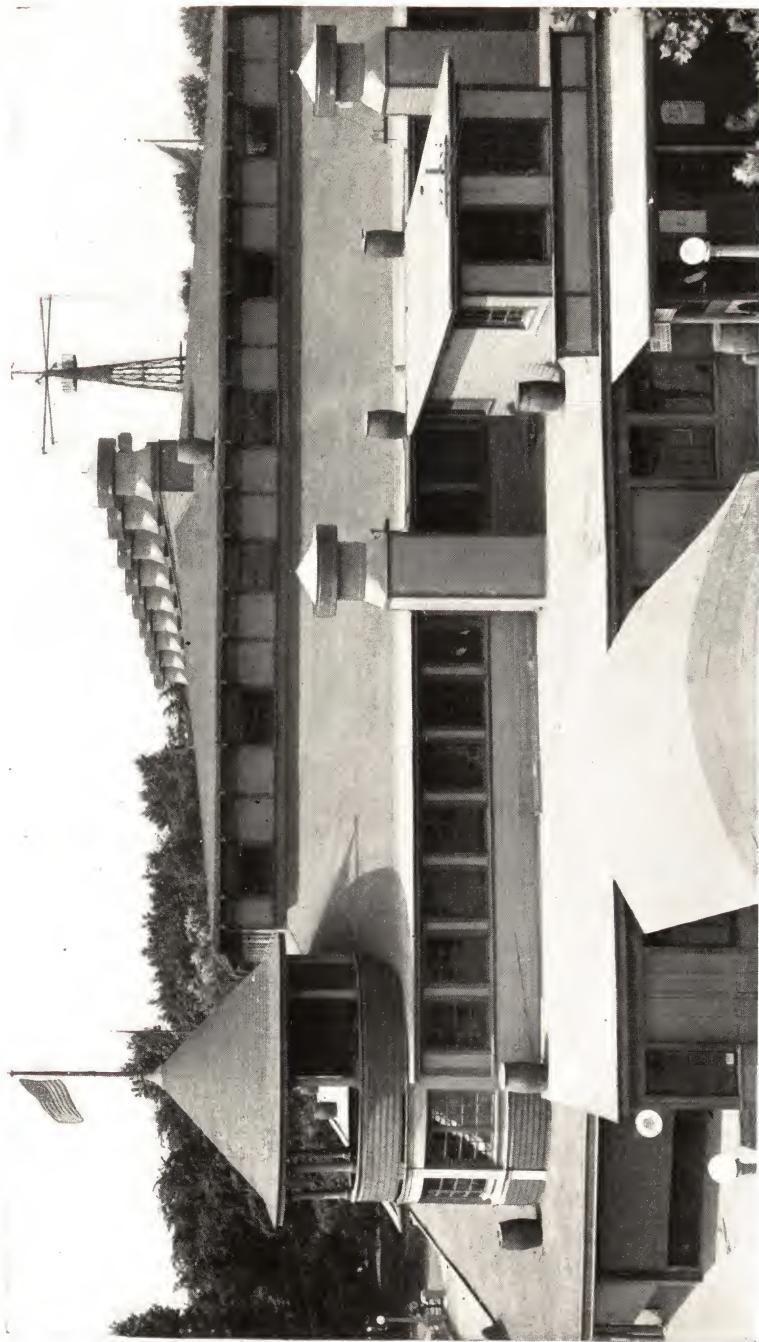
We manufacture the fan so that it can be operated either by pulley or by motor.

Where desired, the fan can be reversed so that cold air can be forced into the building.

This style of ventilator is manufactured in eight sizes; namely, 30, 36, 40, 48, 54, 60, 66 and 72 inch. The power required to operate each fan is from  $\frac{1}{4}$  to  $\frac{1}{2}$  H. P., depending upon size. The fan is fully equipped with ball bearings.

To those who have difficult conditions to overcome in the way of ventilation, we will, upon receipt of information, be willing to place the services of our Engineering Department at their disposal, and submit prices, blue-prints, and our recommendations free of all cost.





Installation of 11-48" Burt Fan Ventilator Euclid Beach Park, Cleveland, Ohio. If interested copy of actual test will be submitted.

## *A Few Users of Burt "Fan" Ventilators*

Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa.—6 48-inch Burt Fan Ventilators.

Westinghouse Lamp Works, Bloomfield, N. J.—1 30-inch Burt Fan Ventilator.

American Pin Company, Waterville, Conn.—3 36-inch Burt Fan Ventilators.

The Roessler & Hasslacher Chemical Co., Perth Amboy, N. J.—3 54-inch Burt Fan Ventilators.

School For Feeble Minded, Redfield, S. D.—1 36-inch Burt Fan Ventilator.

Howe School, Green Bay, Wis.—1 48-inch and 4 36-inch Burt Fan Ventilators.

Dollar Bay High School, Dollar Bay, Mich.—2 48-inch Burt Fan Ventilators.

New Saylor Theater, Store and Flats, Pottstown, Pa.—3 36-inch Burt Fan Ventilators.

Cameraphone Theater, East Liberty, Pa.—3 36-inch Burt Fan Ventilators.

Spring City Foundry Co., Waukesha, Wis.—2 36-inch Burt Fan Ventilators.

Swinehart Tire & Rubber Co., Akron, Ohio—1 48-inch Burt Fan Ventilator.

Bank Theater, Akron, Ohio—2 30-inch Burt Fan Ventilators.

Dreamland Theater, Shreveport, La.—2 36-inch Burt Fan Ventilators.

Mathiessen & Hegeler Zinc Co., La Salle, Ill.—1 48-inch Burt Fan Ventilator.

The Toronto Power Co., Niagara Falls, Ont.—8 42-inch Burt Fan Ventilators.

Lima Locomotive Works, Lima, O.—6 48-inch and 22 36-inch Burt Fan Ventilators.

Jos. Chadwick & Sons, Newburgh, N. Y.—4 36-inch Burt Fan Ventilators.

Kissell Motor Car Co., Hartford, Wis.—1 48-inch Burt Fan Ventilator.

Pittsburgh Valve & Fittings Co., Barberton, O.—1 48-inch Burt Fan Ventilator.

B. F. Goodrich Co., Akron, O.—2 48-inch Burt Fan Ventilators.

The Buckeye Aluminum Co., Wooster, O.—1 48-inch Burt Fan Ventilator.

Ohio State University,—1 48-inch Burt Fan Ventilator.

Regent Theater, Kansas City, Mo.—3 36-inch and 1 24-inch Burt Fan Ventilators.

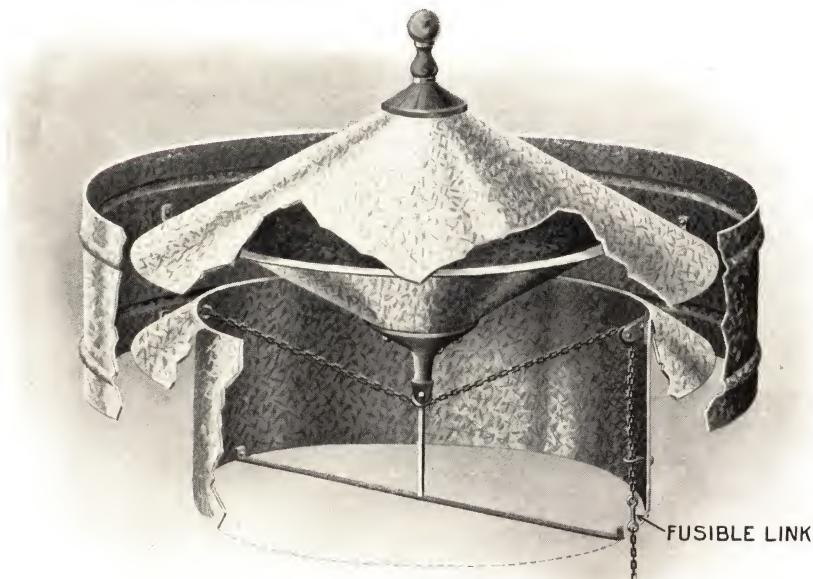
Union Street Railway Co., New Bedford, Mass.—2 36-inch Burt Fan Ventilators.



# *The Burt "Sliding Cone" Damper*

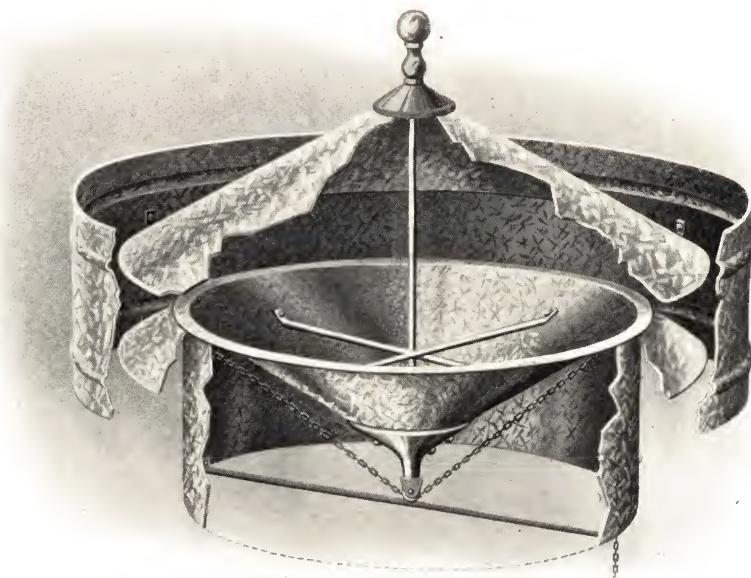
(PATENT APPLIED FOR)

**With Fusible Link Connection for Automatic  
Closing in Case of Fire**



With Cone Damper Open

This ventilator has been designed by us to meet the demands of the trade for a strictly high grade cone damper which will possess the merits of a good ventilator and yet have the feature of automatically closing in case of fire. The fusible link connection is sometimes insisted upon by the fire insurance companies, and in such cases our customers can feel sure that this style of ventilator will meet all of the requirements of the underwriters' association.



**With Cone Damper Closed**

The raising and lowering device (patent applied for) is simple in construction and positive in action, and we will guarantee that damper will not stick or bind. The cone damper moves up and down on the center rod and can be held in any position by means of our patented clip, so that it is not necessary to fasten cord or rope to nail, hook or post.

This style of ventilator is only made with metal tops and with or without fusible links.

Prices upon application.

# ***Burt Ball-Bearing Revolving Ventilator***

Patent Applied For.



THE latest Burt product is the Burt Ball Bearing Revolving Ventilator.

It is fully equipped with high grade ball bearings and is positively guaranteed not to stick or bind.

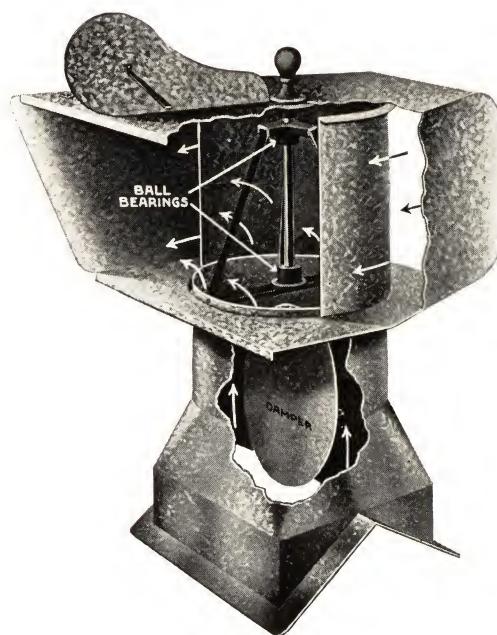


Outside View

Owing to its peculiar construction, as shown in the illustration we take advantage of all the air currents that pass not only over the top and sides of the ventilator, but allow the same to pass directly through the ventilator; thereby creating a partial vacuum and greatly increasing the pulling powers of the ventilator. This same construction also has a tendency to hold the ventilator steady with the wind, thus preventing a continuous whirling motion which is a faulty feature in some revolving types of ventilators.

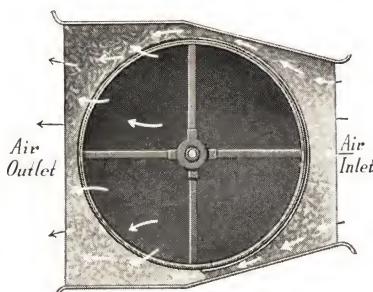
Each and every ventilator is fully erected and tested in our factory before shipment, thus insuring perfect balance.

If so specified, these Ventilators can be furnished with a fire retarding damper which will automatically close in case of fire.



Sectional View

Blue prints will be furnished upon application, and the services of our engineering department are free to all interested parties, and your correspondence is solicited.



End View

## *A Few Users of Burt Revolving Ventilators*

Hazel Atlas Glass Co., Crafton, W. Va., 12-48" Rev. Vent.  
Hazel Atlas Glass Co., Washington, Pa., 10-48" Rev. Vent.  
Rome Mfg. Co., Rome, N. Y., 7-30" Rev. Vent.  
Nashville Ry. & Lt. Co., Nashville, Tenn., 2-24" Rev. Vent.  
First Baptist Church, Cedar Rapids, Ia., 1-24", 1-12" Rev. Vent.  
Spring City Foundry Co., Waukesha, Wis., 7-48" Rev. Vent.  
Pittsburgh Foundry & Machine Co., Salem, O., 1-36" Rev. Vent.  
Franklin School, Omaha, Nebr., 1-40", 1-32", Rev. Vent.  
Kellum School, Omaha, Nebr., 1-24" Rev. Vent.  
Dufold Health Underwear Co., Mohawk, N. Y., 4-18" Rev. Vent.  
High School Bldg., Warsaw, Ind., 2-24", 2-30", 3-42", 2-36" Rev. Vent.  
Haynes Automobile Co., Kokomo, Ind., 1-24" Rev. Vent.  
Board of Education, Omaha, Nebr., for South Central School, 1-30" Rev. Vent.  
Central High School, Omaha, Nebr., 3-30" Rev. Vent.  
Rollin Chemical Co., South Charleston, W. Va., 8-12", 1-12" Rev. Vent.  
Public School Bldg., Seattle, Wash., 1-24" Rev. Vent.  
New Parcel Oil Co., St. Paul, Minn., 2-18", 1-16" Rev. Vent.  
Colburn Machine Tool Co., Franklin, Pa., 1-30" Rev. Vent.  
Atlas Crucible Steel Co., Dunkirk, N. Y., 2-24" Rev. Vent.  
School Bldg., Sioux City, Ia., 2-24" Rev. Vent.  
Park School, Omaha, Nebr., 2-14" Rev. Vent.  
The Texas Co., Bayonne, N. J., 4-18", 6-24" Rev. Vent.  
Eatle-Ottawa Leather Co., Grand Haven, Mich., 7-16" Rev. Vent.  
Fellows Gear Shaper Co., Charlestown, N. H., 4-20" Rev. Vent.  
Board of Education, South Central School, Omaha, Nebr., 5-30", 2-16" Rev. Vent.  
Long School, Omaha, Nebr., 1-20" Rev. Vent.  
Columbian School, Omaha, Nebr., 2-24", 1-10" Rev. Vent.  
School Bldg., Inwood, Ia., 1-16", 2-36", 1-42" Rev. Vent.  
Commercial Savings Bank, Chicago, Ill., 1-12", 1-14", 1-16", 1-18", 1-24", 1-30" Rev. Vent.  
The National Duroc Jersery Assn. Bldg., Peoria, Ill., 5-24" Rev. Vent.  
Saco-Lowell Shops, Biddeford, Me., 1-24" Rev. Vent.  
The Standard Shade Roller Co., Ogdensburg, N. Y., 1-12" Rev. Vent.  
Patterson Mfg., Co., China Grove, N. C., 1-18" Rev. Vent.  
Gypsy Oil Co., Tulsa, Okla., 1-24" Rev. Vent.  
Hanover Wire Cloth Co., Hanover, Pa., 2-42" Rev. Vent.  
Hotel Traymore, Atlantic City, N. J., 1-24" Rev. Vent.  
Howard Kennedy School, Omaha, Nebr., 2-24" Rev. Vent.  
Walnut Hill School, Omaha, Nebr., 2-12" Rev. Vent.  
St. Paul's Sanitarium, Dallas, Texas, 5-12", 1-30", 1-42" Rev. Vent.  
Pennsylvania R. R. Co., Philadelphia, Pa., 1-24" Rev. Vent.  
Colonial Canning Co., Rushville, N. Y., 6-20", 1-30" Rev. Vent.  
Joseph Hannon & Bros., New Castle, Pa., 3-24" Rev. Vent.  
The Firestone Tire & Rubber Co., Akron, O., 4-60", 6-24" Rev. Vent.  
Hotel Edwards, Omaha, Nebr., 2-12" Rev. Vent.  
The Union Rubber Co., New Philadelphia, O., 3-12" Rev. Vent.  
O. H. Hostetter Bldg., Hanover, Pa., 2-30" Rev. Vent.  
Standard Steel Car Co., Butler, Pa., 1-36" Rev. Vent.  
American Steel & Wire Co., Fairfield, Ala., 10-14", 2-14" Rev. Vent.

THE HEINZ ROOFING TILE COMPANY  
TERRA COTTA ROOFING TILES

Denver, Colo.

August 2, 1916.

The Burt Mfg. Co., Akron, Ohio  
Gentlemen:—

We hand you herewith our check covering cost of your Ball Bearing Revolving Ventilator.

You will be interested to know that we used this ventilator on one of our drying tunnels which is four feet wide, seven feet high and eighty-four feet long and it gave perfect satisfaction.

We will be in the market for three others in a short time, and we will be pleased to send you the order.

Yours very truly,

THE HEINZ ROOFING TILE CO.  
C. P. Heinz, Pres.

ATLAS CRUCIBLE STEEL COMPANY  
HIGH GRADE STEELS

Dunkirk, N. Y.

October 12, 1916.

The Burt Mfg. Co., Akron, Ohio  
Gentlemen:—

Replying to your favor of Oct. 2nd, with reference to Burt Ball Bearing Revolving Ventilator which you recently installed for taking gases out of hoods in our laboratory, and are very pleased to state that to date they are giving very good satisfaction, and can see no reason why they should not continue to do so.

Thanking you for your interest in this matter, we are,

Yours very truly,

ATLAS CRUCIBLE STEEL CO.

Purchasing Department.

T. L. Ackerman,  
Purchasing Agent.

**Prices, Dimensions, Weights and Gauge of Iron of the  
Burt Ball-Bearing Revolving Ventilator**

F. O. B. Akron, Ohio, U. S. A.

Diameter of Neck (Inches)	Price	Gauge of Iron	Height (Inches)	Width (Inches)	Length (Inches)	Net Weight	Gross Weight
10	\$10.00	22	16	13½	19	12	31
12	10.00	22	19½	17½	22	15	40
14	15.00	22	22½	18½	26	19	45
16	20.00	22	23½	23	31	22	50
18	25.00	20	25	25½	33	25	55
20	30.00	20	26½	27	36	35	63
24	36.00	20	30	30½	41½	42	70
30	50.00	18	32	39	47	50	84
32	60.00	18	33	40	51½	60	95
36	75.00	18	39	46	56	85	170
40	100.00	18	41	49	62½	135	230
42	108.00	18	42½	51	63½	172	278
48	120.00	18	52½	57½	76	190	329
54	140.00	18	58	63½	85	243	400

Quotations in larger sizes upon application.

VENTILATOR BASES ARE CHARGED FOR EXTRA, FOR WHICH FIGURES WILL BE QUOTED ON RECEIPT OF SPECIFICATIONS.

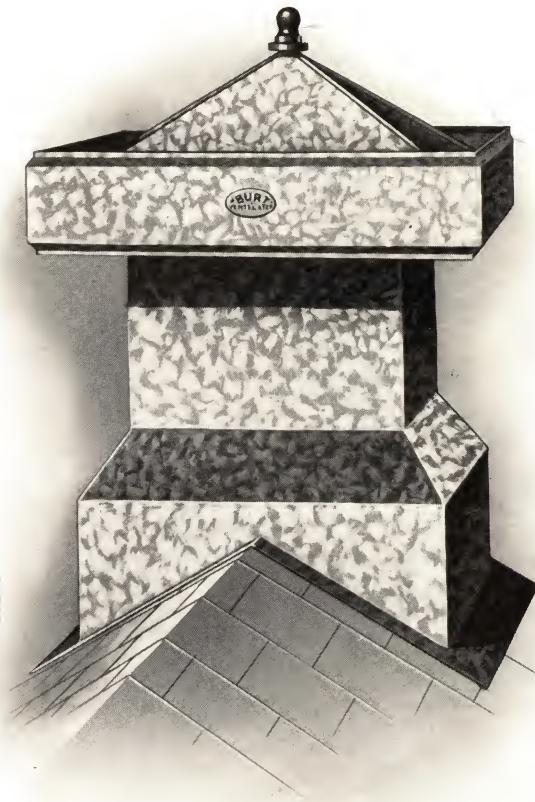
Prices on ventilators made of copper, Toncan, American Ingot Iron, or any other material desired, will be furnished upon application.

We do not furnish any rope or chain for operating damper owing to the fact that the length would vary.

At a slight additional cost we can equip the Burt Ventilator with screens so as to keep out birds.

Where the revolving ventilator only is ordered, we do not furnish a damper, but when bases are ordered with these ventilators, the damper is supplied in the base without additional cost.

## *The Burt Square Ventilator*



This type of Ventilator has been designed to meet the requirements of our customers who prefer a Square Ventilator. This ventilator has at least 25% greater area than a round ventilator of the same size. Can be equipped with our patented sliding sleeve damper or common flat damper. This ventilator is furnished with glass top when desired and when thus equipped becomes a combination skylight and ventilator.

Prices upon application. We also manufacture Rectangular Ventilators of all sizes.

# A Few Recent Sales

**B**ELOW will be found a classified list of some recent sales of "Burt" Ventilators. This list is not a complete one, but is given to show that our ventilator is used on all classes of buildings and is being selected by the most prominent architects and consulting engineers for the largest buildings in the United States. The "Burt" is used extensively by the United States Government (62nd order) on its public buildings, as well as by the United States Steel Corporation (389th order), Standard Oil Company (163rd order), and other prominent corporations. Kindly note in particular the number of repeat orders received.

## Automobile Manufacturers

Packard Motor Car Co., Detroit, Mich.	4	48-inch	G. T.
Maxwell-Briscoe Motor Co., New Castle, Ind.	6	18-inch	M. T.
Ford Motor Co., Detroit, Mich.	2	24-inch	M. T.
Continental Motor Co., Muskegon, Mich.	26	20-inch	M. T.
Waukesha Motor Car Co., Waukesha, Wis.	9	20-inch	M. T.
Maxwell-Briscoe Motor Co., Tarrytown, N. Y.	4	40-inch	M. T.

In addition to the above we have supplied 15 other automobile factories.

## Brass Manufacturers

Turner Brass Works, Sycamore, Ill.	26	12-inch, fourth order	
Badger Brass Co., Kenosha, Wis.	1	30-inch	
Scovill Mfg. Co., Waterbury, Conn.	2	30-inch and 11 36-inch, fourth order	
Adams & Westlake Co., Chicago, Ill.	5	36-inch and 4 16-inch, M. T.	
Buckeye Iron & Brass Works, Dayton, Ohio	8	36-inch	
Wolverine Brass Works, Grand Rapids, Mich.	4	48-inch, second order	

## Colleges

Yale College, New Haven, Conn.	2	72-inch, Copper, 1 36-inch G. T., Copper	
Western Reserve Medical College, Cleveland, Ohio	4	16-inch M. T.	
Hamilton College, Clinton, N. Y.	2	18-inch G. T.	

## Electric Light and Power Plants

Citizens Gas and Electric Co., Pekin, Ill.	3	36-inch	G. T.
Lowell Electric Light Co., Lowell, Mass.	4	48-inch	G. T.
Central Penna. Light and Power Co., Clearfield, Pa.	4	36-inch	G. T.
People's Power Co., Moline, Ill.	8	42-inch	G. T.
People's Power Co., Rock Island, Ill.	6	42-inch	G. T.
Dallas Light and Power Co., Dallas, Tex.	5	48-inch	G. T.
Indiana Union Traction Co., Anderson, Ind.	29	18-inch and 7 24-inch	
Green Bay Traction Co., Green Bay, Wis.	9	36-inch G. T., second order	
Pawtucket Electric Co., Pawtucket, R. I.	2	48-inch	G. T.
Westmoreland County Rd. Co., Derry Station, Pa.	3	36-inch	
Electric Lighting Co., Mobile, Ala.	2	24-inch	G. T.
Northern Texas Traction Co., Fort Worth, Tex.	3	48-inch	G. T.
Northwestern Construction Co., Fraser, Iowa.	6	36-inch	



D. M. Ferry Seed Co., Detroit, Mich. Equipped with 150 14-inch Burt Metal-Top Ventilators.

## Electric Light and Power Plants (continued)

City Electric Light Plant, Dothan, Ala.	10 24-inch
Central Indiana Lighting Co., Bloomington, Ind.	3 36-inch M. T.
Birmingham Ry., Lt. and Pwr. Co., Birmingham, Ala.	3 24-inch and 3 36-inch G. T.
Mobile Light and Rd. Co., Mobile, Ala.	28 30-inch, second order
Mobile Electric Co., Mobile, Ala.	18 24-inch
Terre Haute Traction & Lt. Co., Terre Haute, Ind.	11 48-inch G. T., third order
Fairmount and Clarksburg Traction Co., Jayenn, W. Va.	6 48-inch, second order
Oliver Power Building, Pittsburgh, Pa.	2 30-inch, Copper
Excelsior Springs Lt., Pwr., Heat, and Water Co., Excelsior Springs, Mo.	2 30-inch
Ridgway Water Works, Ridgway, Pa.	3 30-inch
Key West Electric Co., Key West, Fla.	2 48-inch
Commonwealth Electric Co., Chicago, Ill.	9 36-inch

In addition to the above we have recently equipped one hundred and twenty-six electric light and power plants with Burt Ventilators.

## Furniture Manufacturers

Cramer Furniture Co., Thomasville, S. C.	20 12-inch
Toledo Parlor Furniture Co., Toledo, Ohio	6 30-inch
C. H. Brownell, Peru, Ind.	8 24-inch
McGray Refrigerator Co., Kendallville, Ind.	6 18-inch M. T.
Dominion Furniture Co., Montreal, Canada	3 12-inch M. T.
Western Reserve Furniture Co., Warren, Ohio	5 24-inch M. T.
Seiling Furniture Co., Railroad, Pa.	6 20-inch M. T.
Shreve Chair Co., Union City, Pa.	7 36-inch

## Glass Manufacturers

Fostoria Glass Co., Moundsville, W. Va.	5 36-inch
Mississippi Glass Co., Morgantown, W. Va.	8 20-inch M. T.
Kinsella Glass Co., Holland, Mich.	1 60-inch G. T.
Northwestern Ohio Bottle Co., Toledo, Ohio	3 36-inch
A. W. Lewis Glass & Door Co., Morgantown, W. Va.	1 20-inch M. T.
Woodbury Glass Co., Winchester, Ind.	3 30-inch M. T.
Millersburg Glass Co., Millersburg, Ohio	2 48-inch and 1 36-inch G. T.
Moore Bros. Glass Co., Clayton, N. J.	1 18-inch M. T.
Banner Window Glass Co., S. Charleston, W. Va.	5 60-inch M. T.
Northwestern Ohio Bottle Co., Toledo, Ohio	3 36-inch
American Plate Glass Co., James City, Pa.	6 30-inch

## Hospitals

Braddock Hospital, Braddock, Pa.	1 18-inch
Mercy Hospital, Pittsburgh, Pa.	2 36-inch and 1 48-inch
State Sanitarium for Treatment of Tuberculosis, Howell, Mich.	1 16-inch, 1 30-inch, 1 24-inch and 1 12-inch
St. Luke's Hospital, Utica, N. Y.	1 14-inch
Hospital, United Verde Copper Co., Jerome, Ariz.	2 24-inch and 7 18-inch
Hurley Hospital, Flint, Mich.	4 18-inch
State Hospital, Clarinda, Iowa	2 36-inch
Stoles Memorial Hospital, Pawtucket, R. I.	2 48-inch

## Iron and Steel Works

Carnegie Steel Co., Youngstown, Ohio	7 24-inch and 4 12-inch, third order
Inland Steel Co., Indiana Harbor, Ind.	7 36-inch, second order
Union Iron Works, Spokane, Wash.	8 48-inch and 5 36-inch
Standard Steel Car Co., New Castle, Pa.	2 18-inch
National Tube Co., Pittsburgh, Pa.	2 60-inch
Taylor Iron & Steel Co., High Bridge, N. J.	8 24-inch
Dominion Bridge Co., Montreal, Canada	3 36-inch
McKinnon Iron Works, Ashtabula, Ohio	10 24-inch



## *Before Using*

Rochester, N. Y.

The Burt Mfg. Co.,  
Akron, Ohio.

Gentlemen:—

We wish you to name us price on your ventilators. We expect to be able to use about twenty-five in our printing press room. The size of the room is 150 x 250 feet and about 15 feet high, covered with saw-tooth glass roof. We do not need any glass tops on the ventilators, as we have plenty of light. We want a good ventilator which you can guarantee will take the air out in summer on hot, muggy days when it is very oppressive, and the temperature above 80 degrees. We have six or seven ventilators at the present time, but find we have no success with them. The air will not move and remains stagnant, and the reflection from the glass heats up the air in this condition more so.

Our roof is constructed with five gables of 30 feet each, and each gable 250 feet long. We had an idea of placing about five ventilators lengthwise in each gable 50 feet apart, making a total of twenty-five ventilators of your largest size, and wish you to name us price, also what advantages your ventilators may have over the ones we now have placed in our roof.

Awaiting your answer, we are,

Yours very truly,  
STECHER LITHOGRAPHIC CO.

Later on ordered 25 48-inch, making 41 48-inch now in use.

## *After Using*

Rochester, N. Y.

The Burt Mfg. Co.  
Akron, Ohio.

Gentlemen:—

Yours of the 10th received, and note we have fifteen of your 48-inch ventilators installed and have been using them through the hot months just past. Can conscientiously say, are much pleased with them, the results being beyond what we expected.

Have just mailed you an order for another, and expect to adopt your make of ventilator as fast as we have use for a ventilator of any kind.

Yours very truly,  
Stecher Litho. Co.

## Iron and Steel Works (continued)

Penna. & Lake Erie Dock Co., Fairport Harbor, Ohio.....	2 14-inch
American Steel & Wire Co., Cleveland, Ohio.....	30 36-inch G. T., twenty-first order
Oconto Iron Works, Trenton, N. J.....	2 42-inch G. T.
Trenton Iron Works, Trenton, N. J.....	2 42-inch G. T., third order
Baltimore & Susquehanna Iron Co., Hibbing, Minn.....	3 24-inch M. T.
Spargo Mill, Rome, N. Y.....	6 30-inch M. T.
American Steel & Wire Co., Joliet, Ill.....	4 30-inch M. T.
American Steel & Wire Co., Sharon, Pa.....	3 36-inch M. T., second order
American Steel & Wire Co., Waukegan, Ill.....	20 36-inch, eighth order
Steel Fire Proofing Co., Wheeling, W. Va.....	4 24-inch M. T.
Pittsburgh Seamless Tube Co., Beaver Falls, Pa.....	2 24-inch G. T., second order
Ironton Malleable Iron Co., Ironton, Ohio.....	2 36-inch, second order
Tropenas Steel Co., New Castle, Del.....	8 24-inch M. T.
Cambria Steel Co., Johnstown, Pa.....	4 20-inch
Port Henry Iron Ore Co., Mineville, N. Y.....	4 24-inch
Scottdale Furnace Co., Scottdale, Pa.....	4 30-inch G. T.
Pittsburgh Bridge & Iron Works, Rochester, Pa.....	7 12-inch, 3 18-inch, and 7 24-inch M. T., third order
National Wire Cloth Co., Niles, Mich.....	64 12-inch M. T.
Iowa Malleable Iron Co., Fairfield, Iowa.....	8 24-inch M. T. and 1 24-inch G. T.
Clinton Wire Cloth Co., Clinton, Mass.....	7 24-inch G. T.
Enamelled Pipe & Engineering Co., Elyria, Ohio.....	5 36-inch M. T.
U. S. Malleable Iron Co., Toledo, Ohio.....	8 30-inch M. T.

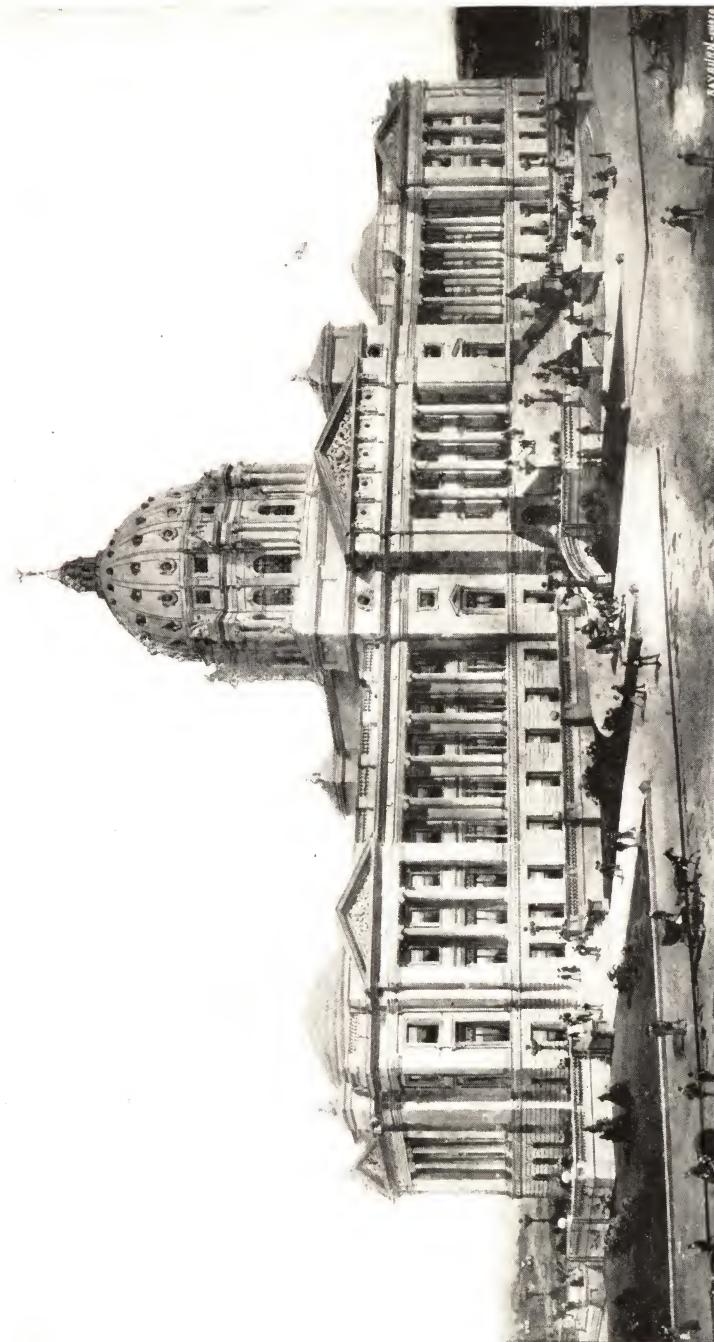
In addition to the above we have equipped one hundred and eighty-one plants.

## Laundries

Youngstown Laundry, Youngstown, Ohio.....	1 30-inch
Davis Laundry Co., Cleveland, Ohio.....	4 24-inch
The Acme Steam Laundry Co., Fort Worth Tex.....	17 20-inch
M. A. Richmond, Noblesville, Ind.....	3 24-inch
Mercy Hospital (Laundry), Pittsburgh, Pa.....	2 36-inch and 1 48-inch
Palace Laundry Co., Pittsburgh, Pa.....	1 40-inch
Great American Steam Laundry, Spokane, Wash.....	2 40-inch and 1 24-inch G. T., second order
Royal Laundry Co., Richmond, Va.....	9 24-inch
Condong's Laundry Co., Shawnee, Okla.....	4 48-inch
Excelsior Laundry, Birmingham, Ala.....	2 24-inch

## Machine Shops

Oliver Chilled Plow Works, South Bend, Ind.....	53 24-inch, fourth order
Morse Chain Co., Ithaca, N. Y.....	2 20-inch M. T.
Corbin Bros Co., New Britain, Conn.....	23 18-inch M. T.
Cell Drier Machine Co., Taunton, Mass.....	5 48-inch M. T.
Dutchess Tool Co., Fishkill-on-Hudson, N. Y.....	4 36-inch and 9 30-inch, third order
Nordberg Mfg. Co., Milwaukee, Wis.....	52 30-inch and 48-inch M. T.
The Prescott Co., Menominee, Mich.....	6 48-inch
Utica Drop Forge and Tool Co., Utica, N. Y.....	36 30-inch M. T.
Columbiania Foundry Co., Columbiania, Ohio.....	4 30-inch G. T.
Quincy Engine Co., Quincy, Pa.....	2 30-inch
Florida East Coast Ry. Co., Miami, Fla.....	48 24-inch
Bucyrus Co., Milwaukee, Wis.....	4 36-inch
Buckeye Engine Co., Salem, Ohio.....	4 30-inch G. T.
Union Iron Works, Spokane, Wash.....	8 48-inch and 5 36-inch G. T.
Nicholson File Co., Paterson, N. J.....	15 16-inch, fifth order
Prescott Steam Pump Co., Milwaukee, Wis.....	8 36-inch
Jones & Lamson Machine Co., Springfield, Vt.....	80 20-inch
Johnson Reynolds Machine Shops, Anderson, Ind.....	1 24 inch and 2 18-inch
McKinnon Iron Works, Ashtabula, Ohio.....	10 24-inch
American Clay Working Machinery Co., Bucyrus, Ohio.....	6 48-inch
American Locomotive Works of New Jersey, Paterson, N. J.....	1 24-inch
American Foundry & Mfg. Co., St Louis, Mo.....	2 24-inch



State Capitol, Little Rock, Ark. Equipped with 7 16-inch, 6 24-inch and 8 48-inch Burt Metal-Top Ventilators.

## B Machine Shops (continued)

Brown Hoisting Machinery Co., Cleveland, Ohio.....	7 24-inch G. T.
Murray Iron Works, Burlington, Iowa.....	1 30-inch
Wm. J. Oliver Mfg. Co., Knoxville, Tenn.....	8 30-inch G. T., 6 48-inch, third order
Scovill Mfg. Co., Waterbury, Conn.....	2 30-inch and 8 36-inch, second order
Raymond Mfg. Co., Corry, Pa.....	5 24-inch
Continental Motor Works, Muskegon, Mich.....	26 20-inch
General Roofing Mfg. Co., St. Louis, Mo.....	4 24-inch
McClintic-Marshall Construction Co., Rankin, Pa.....	12 30-inch
Dwight Divine & Son, Ellenville, N. Y.....	3 16-inch
Timken Roller-Bearing Axle Co., Canton, O.....	1 60-inch and 4 36-inch, second order
Ironton Malleable Co., Ironton, Ohio.....	1 36-inch
Washburn Steel Castings & Coupler Co., Minneapolis, Minn.....	6 36-inch
Wm. C. Downey & Co., Springfield, Ohio.....	6 30-inch
The Whitman & Barnes Co., West Pullman, Ill.....	8 40-inch
John A. Roebling's Sons, Trenton, N. J.....	6 24-inch and 5 36-inch, sixth order

In addition to the above we have recently equipped one hundred and twenty-five machine shops with Burt Ventilators.

## Paper Mills

Androscoggin Pulp Co., Windham, Me.....	7 36-inch, 8 30-inch, and 2 24-inch M. T.
J. P. Lewis Co., Beaver Falls, N. Y.....	7 30-inch and 3 18-inch, third order
Arkell & Smith, Canajoharie, N. Y.....	4 14-inch and 2 12-inch
Granby Paper Co., Fulton, N. Y.....	2 48-inch
Beckett Paper Co., Hamilton, Ohio.....	6 60-inch
Foster-Adams Mfg. Co., Utica, N. Y.....	2 36-inch G. T.
Mutual Box Board Co., Utica, N. Y.....	6 48-inch, second order
Newton Falls Paper Co., Newton Falls, N. Y.....	4 24-inch
York Felt and Paper Co., York, Pa.....	2 24-inch

In addition to the above we have equipped thirty-five other mills.

## Rubber Manufacturers

Fisk Rubber Co., Chicopee Falls, Mass.....	5 36-inch G. T., second order
L. Candee & Son, New Haven, Conn.....	2 36-inch
Star Rubber Co., Akron, Ohio.....	6 20-inch
Diamond Rubber Co., Akron, Ohio.....	4 48-inch
Buckeye Rubber Co., Akron, Ohio.....	10 24-inch
B. F. Goodrich Co., Akron, Ohio,	1 20-inch, 8 36-inch, and 20 24-inch M. T. eleventh order
Firestone Tire & Rubber Co., Akron, Ohio.	19 24-inch and 5 18-inch, twelfth order
National India Rubber Co., Bristol, R. I.....	1 18-inch M. T.
McGraw-Burgess Tire Co., E. Palestine, Ohio.....	8 18-inch M. T., second order
Boonton Rubber Co., Boonton, N. J.	14 18-inch M. T. and 2 24-inch M. T., second order
Goodyear Tire & Rubber Co., Akron, Ohio.....	20 48-inch M. T., eighth order

## Schools

Tipton High School, Tipton, Ind.....	4 24-inch and 8 36-inch G. T.
Cooperstown School, Cooperstown, N. D.....	1 48-inch
Middletown High School, Frederick, Md.....	1 48-inch G. T.
Watertown High School, Watertown, Conn.....	3 60-inch G. T.
City of Pittsburgh, Pittsburgh, Pa.....	
Sharpsville School, Sharpsville, Ind.....	3 40-inch, 1 36-inch, and 1 30-inch
School, Devils Lake, N. D.....	3 30-inch G. T.
High School, West Palm Beach, Fla.....	6 24-inch M. T.
Schoolhouse, Center Rutland, Vt.....	2 36-inch
Northside School, Valley City, N. D.....	1 60-inch



Walter S. Prickett Dairy Barn, Sidnaw, Mich., using 6 36-inch G. T. Burt Ventilators. Among other dairies recently equipped with Burt Ventilators have been the following:  
Dairy Building, Edgewood Farms, Pewaukee, Wis., 4 42-inch; Lackawanna  
Dairy Co., Nicholson, Pa., 5 14-inch, M. T.; Dairy Building, Purdue  
University, LaFayette, Ind., 2 36-inch M. T., 2nd order;  
Belle Vernon Maple Dairy Co., LaGrange, O., 3  
36-inch; Atlas Creamery Co., Lincoln  
Neb., 4 36-inch, M. T.



Dartmouth Manufacturing Company, New Bedford, Mass.,  
using 45 30-inch Double-Damper Ventilators

## Schools (continued)

Adrian High School, Adrian, Mich.....	3 48-inch
Waukon High School, Waukon, Iowa.....	

In addition to the above we have equipped two hundred and four schools, including buildings for the cities of Philadelphia, St. Louis, Detroit, Cincinnati and Minneapolis, etc.

## Sugar Mills

Holly Sugar Co., Holly, Col.....	4 24-inch
Ohio & Texas Sugar Co., Brownsville, Tex.....	8 36-inch
Continental Sugar Co., Blissfield, Mich.....	8 12-inch
American Beet Sugar Co., Las Animas, Col.....	
1 24-inch, 9 12-inch, and 6 20-inch, sixth order	
American Beet Sugar Co., Lamar, Col.....	9 22-inch
American Beet Sugar Co., Rocky Ford, Col.....	12 24-inch, third order
American Beet Sugar Co., Grand Island, Neb.....	5 24-inch, third order
American Beet Sugar Co., San Francisco, Cal.....	2 24-inch

## Textile Mills

Warwick Mills, Centerville, R. I.....	46 30-inch
Klots Throwing Co., Scranton, Pa.....	1 14-inch
J. O. Ballard & Co., Malone, N. Y.....	3 20-inch
Summerville Cotton Mills, Summerville, Ga.....	18 30-inch G. T.
Grinnell Mfg. Corp., New Bedford, Mass.....	33 30-inch
Hebron Mfg. Co., Providence, R. I.....	2 30-inch
Royal Cotton Mills, Wake Forest, N. C.....	10 24-inch G. T.
The Gaston Mfg. Co., Cherryville, N. C.....	11 24-inch G. T.
Victoria Cotton Mills, Rock Hill, S. C.....	1 36-inch G. T.
Leroy Cotton Mills, Leroy, N. Y.....	16 14-inch
Abbeville Cotton Mills, Abbeville, N. C.....	5 48-inch G. T.
Tallapoosa Mills, Tallapoosa, Ga.....	6 24-inch G. T.
Crane Sile Mill, Kingston, Pa.....	7 24-inch
Lockmore Cotton Mills, Yorkville, S. C.....	10 36-inch G. T.
Knoxville Cotton Mills, Knoxville, Tenn.....	1 30-inch G. T.
Saxonville Mills, Saxonville, Mass.....	2 24-inch M. T.
Crompton Co., Crompton, R. I.....	7 12-inch
Hind & Harrison Plush Co., Clark Mills, N. Y.....	6 12-inch and 6 20-inch
Cora Cotton Mills, Kings Mountain, N. C.....	7 36-inch G. T.
Mandeville Mills, Carrollton, Ga.....	10 30-inch G. T. and 2 20-inch M. T.
Magnet Knitting Mills, Clinton, Tenn.....	9 12-inch G. T. and 16 12-inch M. T.
Mallison Braided Cord Co., Athens, Ga.....	17 20-inch G. T.
Elk Cotton Mills, Dalton, Ga.....	21 20-inch and 3 30-inch G. T.
Pioneer Cotton Mills, Guthrie, Okla.....	12 30-inch and 8 20-inch G. T., second order
John Mfg. Co., Kings Mountain, N. C.....	2 30-inch G. T.
Rhodes Mfg. Co., Lincolnton, N. C.....	15 24-inch G. T.
Cranston Print Works, Cranston, R. I.....	4 30-inch
Esmond Mills, Enfield, R. I.....	3 20-inch
Fall River Bleachery, Fall River, Mass.....	2 30-inch
Waxahachie Cotton Mills, Waxahachie, Tex.....	10 30-inch G. T.
Edwards Mfg. Co., Augusta, Me.....	30 30-inch G. T., fifth order
Crown Cotton Mills, Dalton, Ga.....	16 30-inch and 7 24-inch G. T.
Ridgeview Cotton Mills, Newton, N. C.....	4 36-inch G. T.
Botany Worsted Mills, Passaic, N. J.....	
6 12-inch, 6 18-inch, and 9 24-inch, second order	
Caswell Cotton Mills, Kingston, N. C.....	9 24-inch
Wm. Sloane & Co., South Norfolk Station, Va.....	5 24-inch
Northwestern Knitting Mills, Minneapolis, Minn.....	1 60-inch

# Prices, Dimensions, Weights and Gauge of Iron of the Burt Ventilator

F. O. B. Akron, O., U. S. A.

Diameter of Neck	Price with Sliding-sleeve Damper	Gauge of Iron	Diameter of Outside Rim or Band	Height of Glass Top without Base	Height of Metal Top without Base	Length of Neck from Bottom to Lower Rim of Wind Shield	Net Weight Metal Top without Crating	Net Weight Glass Top without Crating	Area of Diameter in Square Inches
12 inch	\$5.00	22	22 ins.	14 ins.	17 ins.	4½ ins.	17 lbs.	20 lbs.	113.10
14 "	7.50	22	24 "	15 "	17½ "	4½ "	20 "	24 "	153.94
16 "	10.00	22	26 "	15½ "	19 "	5 "	24 "	30 "	201.06
18 "	12.50	20	29 "	16 "	21 "	5 "	28 "	34 "	254.44
20 "	15.00	20	32 "	18 "	23 "	5½ "	33 "	42 "	314.19
24 "	18.00	20	38 "	22 "	26 "	6 "	45 "	56 "	452.39
30 "	25.00	18	46 "	24 "	30 "	6 "	90 "	105 "	706.85
36 "	37.50	18	54 "	27 "	36 "	8 "	130 "	155 "	1,017.88
40 "	50.00	18	64 "	33 "	40 "	10 "	175 "	200 "	1,256.00
42 "	54.00	18	68 "	34 "	42 "	10 "	190 "	225 "	1,386.00
48 "	60.00	18	78 "	36 "	46 "	11 "	265 "	320 "	1,809.00
54 "	70.00	18	86 "	40 "	51 "	14 "	350 "	375 "	2,390.00
60 "	80.00	16	94 "	43 "	54 "	12½ "	430 "	425 "	2,827.00
66 "	90.00	16	102 "	46 "	55 "	15½ "	500 "	475 "	3,456.00
72 "	100.00	16	110 "	51 "	66 "	15½ "	600 "	525 "	4,071.00

Ventilator bases are charged for extra, for which figures will be quoted on receipt of specifications.

Prices on ventilators made of copper, Toncan, American ingot iron or any other material desired will be furnished upon application. Ventilators will be furnished without dampers if desired and allowance will be made for same when not ordered. If desired, ventilator can be made square at slight extra cost.

We do not furnish any rope or chain for operating damper owing to the fact that the length would vary. In ordering, be careful to state whether glass or metal tops are desired.

On all sizes above 48 inches, we furnish without extra charge a pipe guide for assistance in operating damper.

**GUARANTY**—Every Burt Ventilator is guaranteed absolutely storm-proof; material and workmanship of the highest grade; operation of our adjustable sliding-sleeve damper to be positive and will not stick or bind. Any ventilator proving unsatisfactory in any way will be repaired or replaced free of charge. We have been in business for twenty-five years, and as to our financial responsibility, we beg to refer to any of the commercial registers.

**B**IN comparing our prices with those of other makers of ventilators, bear in mind that our figures cover the following features *without extra charge*:

Our patented adjustable sliding-sleeve damper (damper always an extra in other makes).

Galvanized steel bands (instead of the common black iron bands used in other makes). Iron bands rust easily and make yellow streaks on the side of the ventilator, and also on the roof.

A patent clip or special attachment to hold the damper in any desired position (used only on our ventilators), making it unnecessary to fasten the rope or chain to hook, nail, or post. In power houses, machine shops, foundries, or in places where cranes are used, this feature will be found extremely valuable, as the crane can be moved back and forth without interfering with the rope or chain holding damper.

A special designed band (patented), used to fasten the glass so that it can be shipped separately and easily placed in position. If glass is broken after erected, a new one can be placed in ventilator without taking same down, a feature found only in the "Burt."

A trough or lip (patented), placed below the glass to collect all condensation, which passes same to the outside of the ventilator.

We call special attention to the unusually heavy gauge of galvanized iron used, as shown in the table on preceding page.

Owing to the very slight additional cost of the glass tops over the metal tops, we strongly recommend this feature, as the Burt Glass Top is a combined skylight and ventilator. This will give additional skylight service at a very slight expense, and at the same time the ventilator will be just as efficient, so far as taking impure air out of a building, as the metal top.

Our glass-top ventilator is flat, as shown on page 71, in all sizes up to 54-inch inclusive, and on larger sizes the glass is made in two flat pieces and supported underneath by heavy angle iron, so that there is no danger of breakage. The very best grade of heavy wired glass is used exclusively and is guaranteed to be of ample thickness for each size.

Sizes larger than the 48-inch are shipped knocked down and are drilled, and are so put together when shipment is made that any first-class sheet-metal man can easily erect same without any trouble whatever.

# *The Burt Exhaust Head*

**W**E have a few words to say of interest to every individual, firm or corporation employing steam for power. Through the use of "The Burt Exhaust Head," we can save you money, and show you how to avoid trouble and accidents.

This device is attached to the exhaust pipe, and prevents oil and wet steam from escaping.

## *Advantages*

Its use prevents drenching and disfigurement of the building and rotting of the roof. This applies to adjoining property as well. It prevents condensed steam from falling on sidewalks, which in winter is dangerous through the formation of ice under foot. Thus accidents to persons, clothes, and vehicles, and resulting lawsuits are avoided.

## *Saves Fuel and Boilers*

Then, again, its use saves the water employed in the steam system, as the same water (after the cylinder oil has been removed) is used over and over again. Most fresh water has lime or other



sediment in it, which forms scale in the boiler and makes it harder for the heat to penetrate, so that the use of the water a second time is also a money-saver. In it these mineral elements are eliminated, for it returns from the exhaust head as distilled water, and thus the boilers are kept clean, and in the increased effectiveness of the apparatus fuel is saved.

### ***Construction***

The Burt Exhaust Head is constructed with perpendicular sides, giving a large inside area and providing abundant room for the expansion of the steam. With plenty of room for expansion, there is no back pressure; and as the area of the steam chamber is not lessened by useless stuffing, it is virtually increased. There is but one steam chamber—the entire head. No baffle plates, no diaphragm, no scrap metal. This means the avoidance of friction, and increases the life of the apparatus. Extra heavy steel-plate is used throughout. No stronger construction is possible.

The "Burt" is equipped with malleable iron bases and drips (galvanized)—another point in its favor—for the reason that malleable iron is much stronger and more durable than cast iron, which is used in the majority of exhaust heads on the market today. The seams and attachments are water-tight; the head cannot overload or blow up if proper size is ordered. They are manufactured out of open hearth galvanized iron of the very best grade, painted with anti-rust paint.

### ***How It Works***

The exhaust steam delivered through the pipe strikes the drum immediately over the inlet. This breaks up the steam into minute particles, condensing some of the vapor. The greatest volume rises to the small projector, is cast over to the flange, and then forced down the inner wall. Coming out of the opening again, it rises to the top of the head and seeks its way out at the inlet pipe. When it comes in contact with cold air, it is condensed into



water, which drips down the wall, is caught on trough-shaped lugs, drips down the tubes (copper) which carry it to the outlet pipe, and thence passes out through the drip. These trough-shaped lugs are protected by patent, and this device cannot be used on any other exhaust head without infringement of our patent.

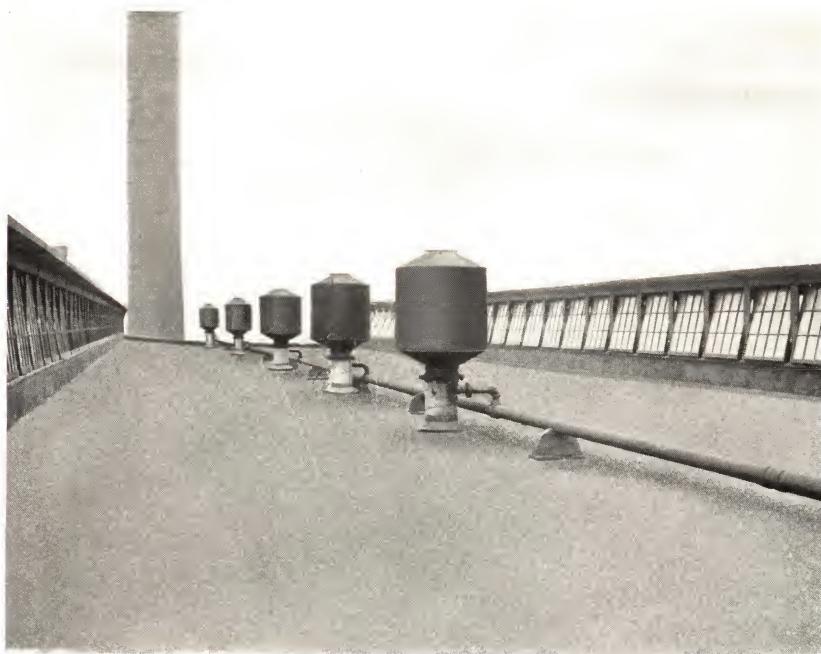
### ***Contrasts***

This is very different from the operation of most other exhaust heads, in which, when the steam

encounters the cold air, it condenses, drops back, is blown out by the next exhaust and scatters over the roof; or, mingling with the atmosphere, it condenses into spray which drops down the side of the building; or, in winter, forms ice under foot. This is impossible with the "Burt", as the water clings to the walls of the outlet pipe, free from contact with the constant current of steam coming up through the head; and nothing but dry steam escapes, and that without noise, puffing, and the disturbance of employes and neighbors.

In length of service of our exhaust heads, we wish to quote from a letter received from the International Harvester Co., Aultman & Miller Branch, Akron, Ohio:

"We are in receipt of your esteemed favor of the 18th, and in reply we are glad to say that the 8-inch Exhaust Head which your superintendent, Mr. Maranville, made for us when we erected our twine plant, sixteen years ago, is still in operation, is giving good satisfaction, and judging from appearances, it is still good for many more years of usefulness."



View of 5 18-inch "Burt" Exhaust Heads at the Plant of the Raritan Copper Works, Perth Amboy, N. J. In addition to these this concern has in use 1 12-inch, 1 14-inch and 2 4-inch "Burt" Exhaust Heads, 7 120-gallon Warden and Cross Oil Filters, 7 "Burt" Unit Oil Filters, and 2 48-inch Glass-Top "Burt" Ventilators

The following letter from the Emporium Iron Co. will be of interest to parties who are undecided as to the merits of different kinds of Exhaust Heads.

Messrs. Burt Manufacturing Co., Akron, Ohio.

Gentlemen: In reply to your letter of the 20th, would state that the 18-inch "Burt" Exhaust Head we purchased from you Aug. 19, 1905, is giving us excellent satisfaction so far. As to comparison with the cast-iron exhaust head, we can give you very little information on this point, inasmuch as we have only had occasion to give one of these a trial. We are pleased to state, however, that the "Burt" is very much superior to the one we had on trial. Yours truly,

EMPORIUM IRON COMPANY,  
Per E. D. White.

It will be noted by above letter that the "Burt" proved successful where a cast-iron exhaust head was rejected.



Illustration showing one 36-inch "Burt" Exhaust Head, made out of No. 7 gauge iron, being an order of one 30-inch and two 36-inch furnished the Norfolk & Portsmouth Traction Co., Norfolk, Va. Sargent & Lundy, Chicago, Ill., Engineers

Our regular exhaust head will, of course, take care of the usual conditions and even when the engine is overloaded to a certain extent, but where the conditions are very unusual it is necessary to have larger exhaust heads, as well as to have them made out of heavier iron.

Among prominent concerns who have been using our exhaust heads for a number of years have been the following:

- United States Government, 25.
- United States Steel Corporation, 169.
- Baldwin Locomotive Works, Philadelphia, Pa., 60.
- Midvale Steel Co., Philadelphia, Pa., 23.
- Babcock & Wilcox Boiler Co., Elizabethport, N. J., 12.
- American Smelting & Refining Co., New York City, 19.
- Pullman Co., Chicago, Ill., 30.
- Diamond Match Co., Barberton, Ohio, 11.
- Messrs. Vickers, Sons & Maxim, Sheffield, Eng., 4.
- Noble's Explosives, Ltd., Stevenston, Eng., 11.
- British Government, 15.

## Price List the Burt Exhaust Head

Net F. O. B. Akron, Ohio

Size of Exhaust Pipe (Inches)	Price	Height (Inches)	Diameter (Inches)	Size of Drip (Inches)	Net Weight (Pounds)	Shipping Weight (Pounds)
1 or 1 $\frac{1}{2}$	\$ 8.00	16	10	1	18	30
2 or 2 $\frac{1}{2}$	10.00	18	12	1	25	40
3 or 3 $\frac{1}{2}$	12.00	20	14	1	35	55
4 or 4 $\frac{1}{2}$	16.00	27	16	1	50	70
5	20.00	29	18	1 $\frac{1}{4}$	70	100
6	24.00	31	20	1 $\frac{1}{4}$	90	130
7	30.00	36	22	1 $\frac{1}{4}$	100	150
8	36.00	39	24	1 $\frac{1}{2}$	125	180
9	42.00	43	26	2	168	225
10	50.00	46	30	2	168	225
11	50.00	46	30	2	190	260
12	60.00	48	32	2	213	300
13	70.00	51	34	2	248	340
14	80.00	56	36	2	280	375
15	94.00	59	39	2	315	435
16	100.00	62	42	2	350	500
17	108.00	69	45	4	425	575
18	120.00	76	48	4	500	650
19	132.00	79	50	4	600	825
20	144.00	82	52	4	700	1000

Heads up to 5 inches in diameter have a very heavy metal base, as illustrated on page 118.

Sizes above 5 inches are fitted with companion flanges without extra charge, as shown on page 118.

In ordering, state inside diameter of exhaust pipe, horse-power of engine, whether or not same is overloaded, and whether the exhaust is severe.

Prices on heads made of copper will be furnished upon application.

In comparing our prices with those of competing makes, careful note should be made of the diameter, height and net weight of the heads. We use iron of heavy gauge, and in nearly every case it will be found that our exhaust heads are relatively larger and heavier than other makes. In many cases our 6-inch head is as large and heavy as the 8-inch heads of other manufacturers.



## The Standard Exhaust Head

**W**E manufacture this style exhaust head for customers who prefer the utilization of centrifugal force for separating the water and oil from the exhaust steam, and also for those who desire a cone-shaped exhaust head. The incoming steam is given a whirling motion at the top of the head, and the water and oil strike the sides, flow down the drip outlet at the bottom, and thus do not come in contact with the incoming steam.



When the exhaust steam comes in contact with the cold air, some of it is condensed into water, which drips down the collar, is caught on the trough-shaped lugs, and flows down into the tubes (copper), which carry it to the outlet at the bottom. These trough-shaped lugs are protected by patent.

## *Large Exhaust Heads*

We have for a number of years made a specialty of furnishing large exhaust heads out of extra heavy iron, and we invite correspondence from parties who are in the market for exhaust heads larger than a 20-inch, or have conditions which are unusually severe and require special heads.

Where an exhaust head is used in connection with a rolling-mill engine or hoisting engine, or where the exhaust is extremely severe, the individual conditions require special treatment, and upon receipt of information as to the H. P. of the engine and whether or not same is overloaded and the exhaust is severe, we will be glad to make quotations.

We can furnish exhaust heads of any size desired and manufacture out of any weight of iron specified.

Among recent equipment of special exhaust heads have been the following:

Jones & Laughlin Steel Co., Pittsburgh, Pa., 30", No. 10 gauge.  
Salem Iron Co., Leetonia, Ohio, 37 $\frac{1}{2}$ ", No. 10 gauge.  
U. S. Steel Corporation, Pittsburgh, Pa., 42", No. 10 gauge.  
Tennessee Coal & Iron Co., Birmingham, Ala., 24", No. 14 gauge.  
Iroquois Iron Co., Chicago, Ill., 16", No. 10 gauge.  
Anaconda Copper Mining Co., Butte, Mont., 24", No. 14 gauge.  
W. Virginia Pulp & Paper Co., Piedmont, W. Va., 24", No. 14 gauge.  
F. W. Cook Brewing Co., Evansville, Ind., 20", No. 10 gauge.  
Atlanta Steel Hoop Co., Atlanta, Ga., 16", No. 10 gauge.  
Chas. C. Moore & Co., San Francisco, Cal., (2) 18", No. 14 gauge.  
Norfolk & Portsmouth Traction Co., Norfolk, Va., one 30" and  
two 36", No. 7 gauge.  
Republic Iron & Steel Co., Republic, Pa., two 16", No. 14 gauge.  
Illinois Steel Co., 30", No. 10 gauge.

On other centrifugal exhaust heads, when the steam strikes the cold air, the water drips down the collar, drops back, and is blown out by the next exhaust, so that the escaping steam is far from being perfectly dry.

### Price List Standard Exhaust Head

Net F. O. B. Akron, Ohio

Size of Exhaust Pipe (Inches)	Price	Height (Inches)	Diameter (Inches)	Size of Drip (Inches)	Net Weight (Pounds)	Gross Weight (Pounds)
1 or $1\frac{1}{2}$	\$ 8.00	21	16	$1\frac{1}{4}$	27	33
2 or $2\frac{1}{2}$	10.00	27	21	$1\frac{1}{4}$	27	33
3 or $3\frac{1}{2}$	12.00	31	25	$1\frac{1}{4}$	40	55
4 or $4\frac{1}{2}$	16.00	37	30	$1\frac{1}{4}$	60	75
5	20.00	40	32	$1\frac{1}{4}$	66	87
6	24.00	43	35	$1\frac{1}{4}$	73	100
7	30.00	47	39	$1\frac{1}{4}$	103	150
8	36.00	50	42	$1\frac{1}{4}$	130	200
9	42.00	53	45	$1\frac{1}{4}$	150	230
10	50.00	57	49	$1\frac{1}{4}$	235	300
12	60.00	64	55	2	305	395
13	70.00	67	58	2	370	470
14	80.00	71	62	2	435	520
15	94.00	74	65	2	475	570
16	100.00	77	69	2	515	622
18	120.00	85	76	3	635	750
20	144.00	95	82	3	800	975



Heads up to five inches in diameter have a very heavy metal base, as in illustration on page 124.

Sizes above five inches are fitted with companion flanges, as shown on this page.

In ordering, state diameter of exhaust pipe (inside), horsepower of engine, whether or not same is overloaded, and if the exhaust is severe. In comparing prices with competing makes, note diameter, height, and net weight of heads.



Thirty-inch Standard Exhaust Head of No. 10 Gauge Iron made for the Jones & Laughlin Steel Company, Pittsburgh

The United States Government specified 1 14-inch, 2 18-inch, and 2 28-inch Standard Exhaust Heads made of No. 10 gauge iron for use on the power houses erected on Panama Canal. The Salem Iron Company, Leetonia, O., have a  $37\frac{1}{2}$ -inch Standard Exhaust head of No. 10 gauge iron. A 34-inch and a 42-inch Exhaust Head of No. 10 gauge iron which we recently made for the United States Steel Corporation is the 176th furnished this firm.

## ***Sheet Metal Work of All Kinds***

E have recently completed two large additions to our factory which have been equipped with most modern machinery, and in addition to our complete line of oil filters, exhaust heads and ventilators, we are now in a position to manufacture sheet metal work of every description, such as engine shields, tool boxes, tanks, machinery guards, and general factory work of all kinds, made out of galvanized iron, brass, copper, etc.

Upon receipt of blue prints and specifications, we would be pleased to submit estimates, and where desired, the service of our engineering department will be placed at your disposal free of cost.

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AGENCIES IN ALL PRINCIPAL CITIES IN THE WORLD

